



# OECD Territorial Reviews

## Gotland, Sweden





# OECD Territorial Reviews: Gotland, Sweden

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# Foreword

This *Territorial Review of Gotland*, Sweden, highlights Gotland's particularities as an island region and provides recommendations to help improve quality of life for residents and support more efficient use of public resources.

By definition, islands are separated from the mainland by sea, making them peripheral territories. This often results in a high dependence on local resources, high costs of transporting goods and people, a limited internal market, a small labour market, scarcity of land as well as strong local culture and identity linked to unique natural beauty and landscape specificities. However, despite these commonalities, islands vary in their proximity or remoteness from the mainland, resources, demographic trends and degree of autonomy and population size, requiring specific place-based policies that reflect their distinct social, cultural and economic development trajectories.

Gotland is the largest island (3 140 km<sup>2</sup>) in the Baltic Sea, representing 0.8% of Sweden's land area, but is the smallest Swedish region in terms of inhabitants (60 970, 0.6% of the population) and its economic base (0.4% of gross domestic product [GDP]). As an island economy, its small critical mass and remoteness from larger markets are key challenges but so too are its vulnerabilities to climate change (e.g. summer droughts and sea level rise), a largely seasonal economy, difficulties in attracting high-skilled labour and limited administrative capacities.

Nonetheless, Gotland has a relatively well-functioning infrastructure, with a fibre optic network throughout the island, a strong local ecosystem (with its university providing both education and research services) and a relatively diverse economy (agriculture, agro-food, limestone and cement industry, cultural industry, digital services and tourism). Coupled with a relatively large public sector (employing 11.8% of the workforce) and an effective social service system, these have enabled relatively high well-being standards compared to other European islands and remote regions. Like many islands, the region also has the advantage of functioning as a testbed for technological and social innovations. For instance, Gotland was selected as the Swedish pilot for a smart and renewable energy system. The island also enjoys considerable policy and administrative responsibilities, given its unique administrative status as both a region and a municipality.

Seen through the lens of these specificities, this *Territorial Review of Gotland* examines its economic, social and environmental challenges and opportunities and offers policy recommendations in three main areas: i) infrastructure investments and planning, focussing on energy provision, water management, housing and digital infrastructure; ii) innovation capacity and business support to increase productivity; and iii) multi-level governance and subnational finance, to improve administrative capacity and effective use of own public resources to deliver services throughout the territory.

This review is part of a series of OECD Territorial Reviews created in 2001 to support regional development at the multi-country, country, regional and metropolitan scale, through peer-to-peer learning and the dissemination of best practices. The analysis follows a standard methodology. It draws on Region Gotland stakeholder responses to a detailed OECD questionnaire, in-depth desk research, two virtual and one physical study missions in 2021 and insights from two peer reviewers (from Prince Edward Island, Canada, and Scotland, United Kingdom) as well as phone interviews and detailed consultations with Region Gotland. The review was approved by the Regional Development Policy Committee (RDPC) Working Party on Rural Policy at its 27<sup>th</sup> session on 10 May 2022.

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# Abbreviations and acronyms

CAB	County Administrative Board
CAF	Family Allowance Fund
CCS	Cultural and creative sectors
CESAP	Climate Emergency Skills Action Plan
CMP	Copenhagen Malmö Port
CNAV	National Old Age Insurance Fund
CP	Comprehensive Plan
CSIRO	Commonwealth Scientific and Industrial Research
DGFIP	Directorate-General for Public Finance
EAFRD	European Agriculture Fund for Rural Development
EECOLE	Entrepreneurship Education Collaboration and Engagement
ERDF	European Regional Development Funds
ESF	European Social Funds
EU	European Union
EUR	Euro
GDP	Gross domestic product
GEAB	Gotlands Energi AB
GHG	Greenhouse gas
GUBIS	Gotländska utvecklingsbolag i samverkan
GVA	Gross value added
GWh	Gigawatt hour
ICT	Information and Communications Technology
kV	Kilovolt
MSA	Mutualité sociale agricole
MW	Megawatt
NDPC	Northern Dimension Partnership on Culture

NMR-M	Non-Metro-close to metro
NMR-R	Non-metropolitan region - remote
NMR-S	Non-Metro-close to small city
NOK	Norwegian krone
OECD	Organisation for Economic Co-operation and Development
OGP	Open Government Partnership
PIT	Personal Income Tax
PPP	Purchasing power parity
RDA	Regional Digital Agenda
REIS	Rural Establishment Innovation Survey
SALAR	Swedish Association of Local Authorities and Regions
SEK	Swedish Krona
SMEs	Small and medium sized enterprises
TFEU	Treaty on the Functioning of the European Union
TEC	Treaty on the European Community
TL2	Territorial level 2
TL3	Territorial level 3
USD	US Dollar
VR	Virtual reality

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# Executive summary

## Assessment

Gotland's development trajectory is unique in Sweden. While the country has numerous islands and long coastal lines, the region of Gotland is by far the largest island (3 140 km<sup>2</sup>) and is located the furthest from the mainland (90 km). It is also the only territory that has both regional and municipal administrative responsibilities.

Gotland represents 0.8% of Sweden's land area. With a population of about 60 970 (0.6% of Sweden's national population), Gotland is the smallest region in terms of inhabitants and the smallest regional economy (contributing 0.43% of the national GDP) in Sweden. The region displays lower productivity and population growth than Swedish mainland regions but, across many indicators, it outperforms many comparable benchmark regions (EU islands and OECD remote rural regions). For example, since 2009, Gotland's GDP per capita has grown by an average of 1.2% per annum, compared to 0.23% in peer island regions and a contraction (of -0.67%) in remote regions.

The island has a number of important advantages that positively influence its development. These include the presences of raw materials, a mild climate, a high potential for a connected, smart and renewable bioeconomy and circular economy (Gotland functions as a national testbed for renewable energy), a university providing research, education and training, very good broadband connectivity (88% of households have access to the fibre optic network) and a strong local identity and vibrant civil society. These make it an attractive location for tourists and internal migrants alike. Gotland's population had been stagnating until 2016 but, since then, the population has grown (up 3.34% between 2016-19), largely due to inflows of working-age families with children from the mainland. The island also has significant policy and service delivery responsibilities relative to population size.

As an island economy, however, Gotland has a range of bottlenecks that, without action, can hold back well-being and sustainable regional development. These include its lack of critical mass and remoteness from larger markets, vulnerability to climate change (e.g. summer droughts and sea level rise), higher relative costs to deliver services and infrastructure, a largely seasonal economy and high elderly dependency ratios. In response, Gotland has put in place a well-developed regional development strategy *Our Gotland 2040*.

To further improve the quality of life for its residents and deal with persisting challenges, the study provides recommendations in three main areas. The first deals with improving infrastructure planning, investments and delivery. Some of Gotland's infrastructure will soon be unable to provide an appropriate level of service as it nears the end of its useful life or in response to the increasing impacts of climate change and population growth. Gotland currently lacks a forward-looking approach to preparing for infrastructure needs dependent on external decisions (e.g. future energy connection to the mainland, the fate of the local cement plant, increased water shortages or military presence). The second focuses on the business environment, noting that Gotland enjoys one of the highest rates of start-ups in the country and a vibrant business community characterised by a "doer" mindset. Yet, small and micro businesses, which make up the majority of companies, struggle to innovate, reach off-island markets and access needed scale-up and

growth support. In addition, low levels of post-secondary education and relatively high student drop-out rates make it difficult for employers to find highly skilled workers. Finally, the report focuses on improving administrative and financing capacity to make effective use of its limited own public resources (i.e. its small tax base) to deliver services throughout the territory. It also makes recommendations for addressing a lack of clarity in the distribution of responsibilities among levels of government resulting from administrative reforms that granted the region increased regional development responsibilities.

## Key recommendations

### ***Region Gotland needs to improve infrastructure planning, investment and delivery to stay ahead in a rapidly changing environment. The region should:***

- Adopt a more foresight-oriented approach to exploring and assessing the regional development consequences of decisions on issues that are outside of its legislative power, such as the fate of the local cement plant and the provision of a new cable to supply electricity.
- Continue to align infrastructure planning and investment decisions to regional development priorities, identified in Our Gotland 2040. Investments should be determined based on their ability to generate economic, social and environmental returns. Region Gotland should consider a variety of future investments, including: expanding renewable energy capacity; working with the local agricultural sector to encourage water retention practices; increasing transport to other countries in the Baltic region to allow for more tourism and facilitate exports to new markets; increasing the supply of the housing stock for permanent residents to address the chronic shortage of moderate-income/rental housing; upgrading wireless capacity to full 5G across the island; and promoting the island as a remote working hub, attracting people from the mainland to work remotely, as well as providing more flexible work opportunities for local residents.
- Allow for, and support, infrastructure solutions specific to local needs across the island and, where appropriate, involve local development companies in developing and implementing solutions and seek synergies with local service provision.

### ***To boost productivity and add more value to existing sectors, the region should strengthen its business ecosystem, innovation capacity and skills development by:***

- Supporting the development of an inclusive business support ecosystem that provides support through all relevant stages of the business life cycle and that focuses on island-specific challenges, including the small local market and opportunities for off-island networks. For instance, Region Gotland should continue with plans on setting up an accelerator programme, introducing a mainland broker, increasing digital skills in small- and medium-sized enterprises (SMEs) and promoting youth entrepreneurship.
- Adding value to sectors defined in its smart specialisation strategy and further developing niche markets that allow for strategic diversification of the local economy. Specifically, the region should increase exchange and collaboration among existing initiatives and sectors, continue to nurture a farm-to-table culture, develop opportunities for game design students to transition into professional game developers and work on a strategy for its creative and cultural sectors. It should also continue to combine research with regulatory framework conditions to allow for experimentation and applied research on the island.
- Addressing future labour market and skills needs by reinforcing the anticipatory planning and strategic understanding of future skills needs, supporting up- and reskilling through local SMEs and setting up experience-sharing networks among teachers to attract young teachers to rural places.

***To effectively implement its regional development strategy, make efficient use of resources and better serve the diverse needs of local communities, the region, in collaboration with other stakeholders, should:***

- Reinforce the presence of administrative and other services throughout the island by creating territorial delegations or establishing a network of access points to services and continuously develop the regional government's management capacities and digital skills, for instance, by establishing the desired skillset for a future and strengthened collaboration with local development companies to leverage on their capacities to make a positive impact on rural communities on Gotland.
- Limit the impact of a volatile and potentially limited own-source revenue stream, due in part to the seasonality associated with tourism-generated revenues and in part to the island hosting a significant number of vacation-time residents rather than permanent residents. Further reinforcing its attractiveness and branding initiative as a means to encourage new businesses and the growth of existing businesses on the island could help address this matter.
- Build Region Gotland's strategic capacity in managing European Union funds, particularly cohesion policy funds, to better link project call design with the needs and project design and implementation ability of island beneficiaries. This can further support the effective use and absorption of funds.
- Strengthen vertical co-ordination to ensure place-based and island-proof policies, clarify assignments among levels of government by establishing a working group that brings together Region Gotland and the different national agencies with a presence on the island, as well as enhancing accountability by introducing monitoring and evaluation mechanisms. It is important to ensure that stakeholders, including residents, know which level of government is responsible for specific activities, how these activities are implemented and how resources are used. An interoperated monitoring dashboard bringing together all agencies involved in regional development could be one such tool.





# Assessment and recommendations

## Assessment

### ***As an island, Gotland has a unique development trajectory***

While Sweden has numerous islands and long coastlines, the region of Gotland is by far its largest island (3 140 km<sup>2</sup>), is located the furthest from the mainland (90 km) and is the only territory that has both regional and municipal administrative capacities. Gotland represents 0.8% of Sweden's land area and with a population of about 60 970, it is the smallest Swedish region in terms of inhabitants but the 29<sup>th</sup> largest municipality out of 290. The island is also of considerable security interest because of its central location in the Baltic Sea and its closeness to other countries in the Baltic region. Its strategic importance has grown following Russia's large-scale aggression against Ukraine. Visby is the island's main city, home to about 26 000 inhabitants. It is a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site and also contains a large share of jobs, infrastructure, trade and services for the island. The majority of Gotlanders (60%) live outside Visby. According to the OECD typology (see Annex 4.B), Gotland is classified as a predominantly rural remote TL3 region.

Gotland's economic geography is relatively diverse despite its small size. Apart from the public sector, which is largely situated in Visby, the island is specialised in primary sectors, including agriculture and material processing activities, particularly quarrying and cement production. The island is home to Sweden's largest cement plant supplying international and mainland industries. Industrial production is situated in the north of the island around the industrial port of Slite, while the agricultural centre is located in the south and interior of the island. The island's strong tourism sector spreads out across the coastlines and beaches. It largely depends on Swedish tourists, resulting in the population doubling over the summer months.

As a relatively small island economy, Gotland must address a range of bottlenecks to enhance well-being and attain sustainable regional development. These include a lack of critical mass and distance to larger markets, vulnerability to climate change (e.g. summer droughts and sea level rise), higher costs to deliver services and infrastructure, and high elderly dependency rates.

### ***Gotland outperforms comparable benchmark regions from European Union (EU) islands and OECD remote rural regions***

Compared with OECD peer regions, Gotland has good living standards. In terms of gross domestic product (GDP) per capita, Gotland ranks above the level of comparable islands (USD 32 925) and remote regions<sup>1</sup> (USD 28 904). However, it has the lowest place amongst all Swedish regions, with USD 37 323 in 2018, which places it below the OECD (USD 45 217) and national (USD 50 473) averages. The gap in GDP per capita with respect to the national average has widened over the past 2 decades (+6 percentage points between 2000 and 2018). Yet compared to its peers, Gotland's economy has performed well since 2009, with its GDP per capita growing by 1.2% annually, against a 0.23% of peer island regions (-0.67%) in remote regions. In the national context, Gotland has the lowest level of labour productivity (19.6% below

the national average). Yet when compared to peer regions, productivity trends on Gotland have been competitive. Since 2009, Gotland's annual productivity growth of 0.8% has outpaced that of peer EU island regions (-1.28%) and peer remote regions (0.33%). Raising productivity on Gotland will be critical to sustaining high living standards and growth over the medium and long terms. In this respect, Gotland has the potential to raise productivity by fostering innovation across the entire regional ecosystem, attracting skilled labour by further improving its attractiveness (e.g. in terms of quality of life and services, schooling, housing, etc.), addressing challenges of seasonality in its labour market and adding more value to existing areas of economic specialisation.

Internal migration has boosted population growth on Gotland (3.4% in the period 2001-19) but still remains below the Swedish average of 15.2%. However, Gotland's population growth is similar to the remote region benchmark and significantly higher than the EU island benchmark. The positive migration of working-age adults with children has increased Gotland's youth dependency ratios, which exceed both its island and remote region peers. At the same time, Gotland's population is ageing fast. Between 2010 and 2020, the elderly dependency ratio increased 4.8 percentage points, whereas the Swedish average only increased by 2.2 percentage points. This is also well above the remote region benchmark, although similar to other island regions. These demographic trends present a number of challenges for the delivery of public services, the tax base and the sustainability of traditional sectors, given that farmers and other occupations need to find successors.

### ***Quality infrastructure has enabled high well-being standards but will soon require upgrading and expanding***

As an island, Gotland is highly dependent on infrastructure connections due to its isolation and remoteness from the mainland. Key infrastructure assets of Gotland include a recently expanded port to support larger cruise ships, fibre optic broadband throughout the island (88% of households have access to the fibre optic network), charging stations for electric airplanes and other renewable energy systems (renewable energy generation from biogas, solar and wind). However, some of Gotland's infrastructure will soon be incapable of providing an appropriate level of service. In some cases, this is due to infrastructure reaching the end of its useful life and in other cases, the increasing impacts of climate change or population growth.

Key infrastructure challenges include:

- Introducing a new, stable primary source of electricity to replace the current subsea cable from the mainland that is reaching the end of its expected life. For renewable energy to take on a larger role in the island's electricity supply, it needs to overcome its intermittent nature and limited or contested locations for deployment. Replacing the existing cable will likely be vital for the local economy to supply significantly increased demand needed for industrial processes. The decision around the cable replacement is outside the region's legislative power. The region can do more to strategically prepare for the consequences of alternative scenarios for energy cables.
- Water shortages currently limiting economic development and result in strict regulations. Climate change and increasing demand for water put further pressure to undertake new water infrastructure investments that can increase the quantity and quality of water. Water availability is projected to decrease by 13.3% for Gotland between 2021-50 compared to 1961-90 and estimates suggest that demand will increase by more than 40% by 2045. A mix of different technical solutions will likely be required on different parts of the island, because use, existing infrastructure and geological conditions vary significantly.
- Developing a sufficient supply of affordable permanent housing options. Seasonal homes dominate new housing (between 2010 and 2020, 58% of building permits were for second or holiday homes) since they are the most profitable form of new construction. The share of moderate-income housing, particularly rental housing, is not on par with population increase, causing prices to rise (the municipality of Gotland ranks 5<sup>th</sup> highest among all 290 Swedish municipalities in terms of

price increases since 2020). This makes it hard for lower-income households or young people to find affordable places to live. The lack of accommodation is also putting pressure on regional attractiveness, seasonal industries and university students.

***Gotland needs to further strengthen its business ecosystem and use innovation to add more value to existing areas of specialisation to sustain a resilient and sustainable future***

*Many of Gotland's enterprises stay small: expanding support for enterprises to the growth stage, strategically using innovation and upskilling workers can help them scale or grow*

Gotland is characterised by a vibrant start-up community, recording the second-highest rate of start-ups in the country (12.5 per 1 000 inhabitants just after the capital city of Stockholm with 14.8). Yet, entrepreneurs are older than in other regions and micro and small businesses make up the majority of businesses (91% of all privately owned workplaces have 0-4 employees and less than 3% have over 50 employees). While only some local firms have the capacity or willingness to grow, it is important to identify those who do and help them obtain the needed support.

The incubator programme and the notable potential for improved research and skills development through the university are at the heart of entrepreneurship support on Gotland. Support for business growth and scale-up, however, is still underdeveloped or only punctually covered. Overall, the system is not set up in a way that follows the business life cycle and currently does not provide sequential support for each step of the way. This holds the risk of firms being stuck at a pilot stage, with businesses having less opportunity for more job creation.

Small- and medium-sized enterprises (SMEs) on Gotland struggle to attract and retain skilled and high-qualified personnel. In addition Gotland records lower levels of education than the Swedish average. Only 43.5% of women and 28.9% of men aged 25-64 on Gotland have upper secondary education. This is lower than the Swedish average of 49.8% for women and 37.6% for men. Consequently, upskilling local employees and building a local workforce that fits the emerging needs of the local economy is of increased importance for Gotland. This will be even more so as, in the coming years, successors will be needed for many retirees. The lack of affordable, permanent rental housing makes recruitment and retention increasingly difficult.

*Opportunities can enable further economic diversification and add more value to existing areas of economic specialisation*

A large part of Gotland's economy is seasonally defined, growing during the summer months and shrinking in the winter. Enhancing innovation in the region can add more value to established and niche markets, and help diversify the labour market around three areas of smart specialisation (hospitality, agro-food industry and renewable energy). Areas of opportunity include mobilising synergies in overall research and innovation activities, improving a distribution channel for small-scale food products, establishing close links between the agro-food and hospitality industries to attract tourists throughout the year, as well as drawing on the innovation potential of the creative and cultural industries, especially the game design university track.

Gotland is well positioned to advance its bioeconomy and circular economy in conjunction with its ongoing status as national pilot for a fully sustainable energy system by 2040. The geographical and social proximity within the island provides a suitable environment for circular economy development that relies on material flows and synergies between users. The island is also home to a range of sectors that belong to the bioeconomy, including crop and animal production, forestry, manufacturing of food products, beverages, tobacco products and aquaculture.

## **Region Gotland administers regional and municipal assignments as a single entity, with potentially greater efficiency**

*Effective regional development will depend on strengthening the capacities of regional government staff and ensuring equitable service provision throughout the territory, reflecting diverse local needs*

The island of Gotland is both a single region and a single municipality in Sweden's territorial administrative structure. Region Gotland, the island's administrative body, fulfils the functions of both a regional and municipal government. This structure is unique in Sweden and permits the regional government to administer regional and municipal assignments as a single entity, with potentially greater efficiency. At the same time, consolidating all subnational government responsibilities into one body requires a higher-than-average ability to deliver on responsibilities and tasks. While in other parts of Sweden competencies are distributed between the regional and municipal levels, on Gotland they are not. This structure creates a heavy workload for a small administration, where many public officials play a dual role, and it can generate a shortage of skills, ranging from digital to analytical, required to fulfil tasks.

Human, financial and infrastructure resources are not always sufficient to provide quality services throughout the territory. This is illustrated by the fact that Region Gotland is facing some challenges in meeting its goals for citizen satisfaction with public services, as some citizens still do not feel that it is easy to get in touch with the regional government or access some public services throughout the island. Various local, not-for-profit development companies have emerged to fill this gap in service provision (i.e. providing housing, economic development and leisure services), particularly in the more remote or rural areas of Gotland. Providing future infrastructure and service needs in rural communities will depend on the long-term viability of local initiatives and their access to resources, as well as a more effective regional government that has a stronger presence throughout the island. This necessitates equipping administrative staff with the necessary skills, reinforcing the presence and increasing strategic co-operation with local initiatives.

*Gotland must manage low own-source revenues and a higher cost of infrastructure and public service provision resulting from remoteness and high seasonality*

Region Gotland enjoys greater budgetary autonomy and flexibility than other municipalities and has seen an increase in its overall revenues, benefitting from the new fiscal equalisation system. However, being a mainly agricultural and tourist island economy, it has an own-source revenue stream that currently faces limitations. Its revenues in almost all categories are less than what general subnational revenue represents as a percentage of the total government revenue system, and its regional and local tax revenues remain lower than the national average, with the discrepancy generally increasing since 2016. For instance, in 2020, Gotland's regional tax revenue was 7% lower than that of other Swedish regions. At the same time, it faces higher costs of infrastructure and public service provision. For instance, according to 2020 figures, general structural costs on Gotland were 7% higher than the national average. New ways to strengthen the flow of fiscal revenue, including own-source revenue, must be found to ensure the availability of sufficient resources to further invest in regional development. Reinforcing Gotland's regional attractiveness strategy, particularly the resident and business pillars could help increase own-source revenue as well as contribute to user charges and fees. In addition, focusing on Gotland's smart specialisation strategy could, over time, boost the island's competitiveness and productivity which would also contribute to revenue streams.

*Addressing a lack of clarity in the distribution of responsibilities among levels of government and island-blind national strategies can improve the efficient implementation of strategies*

Receiving regional development responsibilities has empowered Region Gotland but has also accentuated co-ordination challenges with other levels of government. Since 1998, Region Gotland can design and implement its own strategic priorities and measures for its growth and development based on its assessment and knowledge of regional strengths. At the same time, it has become challenging to effectively implement the policies emanating from the central level because national strategies sometimes are not “place-sensitive” or their implementation exceeds the capacities of the regional government. Current steering documents for regional development at the national level in Sweden do not sufficiently consider the significance of insularity and how it can limit the economic and social development of islands and the living conditions of their inhabitants in relation to the rest of the Swedish territory. The consolidation of regional and local level responsibilities into one government has also generated a lack of clarity in the distribution of responsibilities between the levels of government and produced accountability issues that need to be resolved in order to strengthen co-ordination among regional and national agencies and improve the government-citizen relationship.

## Recommendations

***Gotland needs to improve infrastructure investment, planning and delivery to stay ahead in a rapidly changing environment, increase its competitiveness and remain attractive***

Region Gotland should:

- **Adopt a more visionary and foresight-oriented approach to exploring the consequences of different scenarios for decisions that are outside the control of the regional authorities** (fate of the local cement plant and the provision of a new cable to supply electricity). To do this, the island should anticipate the consequences of these various decisions on the island’s future economic development path and determine necessary regional responses.
- **Better align infrastructure planning and investment decisions to regional development priorities, including in Our Gotland 2040.** Our Gotland 2040, released in 2021, can be used as a guide to developing priority areas for infrastructure investment that align with local needs. Priorities in the plan that have implications for infrastructure include improving accessibility, being at the forefront of the climate and energy transition and conserving water and the environment. Investments should be determined based on their expected economic, social and environmental returns.
- **Allow for and support infrastructure solutions specific to local needs across the island and, where appropriate, involve local initiatives and seek synergies with local service provision.** As an island, Gotland can make use of not having to integrate into larger infrastructure elements, making local choices, for instance regarding water, sanitation and broadband infrastructure, more flexible. Especially, more remote communities lend themselves to innovative actions directly suited to local needs. The regional government can do more to support local development companies and make room in its strategic planning for a broad variety of alternative solutions as well as possibilities for peer learning between local development companies working on infrastructure provision.

- **Consider a variety of future investments, including:**
  - Expand renewable energy capacity, the extent of which will be defined by the provision of the submarine cable. Continue the process to upgrade the electricity distribution grid to meet future increases in the use of electricity by households, businesses and transport.
  - Closely monitor and plan for climate-induced water stress related to decreased rainfall and possible saltwater intrusion in wells, and further support the local agricultural sector to encourage water retention practices.
  - Seek out new transport routes to the Baltic region to allow for more tourism and facilitate exports to new markets.
  - Continue exploring opportunities to support the increased adoption and use of sustainable transportation including biking.
  - Increase the supply of housing stock for permanent residential use on the island along with support schemes to address the chronic shortage of rental housing through a policy mix. This could include: zoning additional land for housing and loosening height restrictions, increasing the penalty developers have to pay if they do not follow building permits that require a certain number of units to be reserved for permanent and/or rental use; and acquiring additional municipal land and lease it to building developers, reserving a number of units for medium-income/rental use as well as developing additional student accommodation to meet student needs that can be used by summer workers when classes are not being held.
  - Facilitate upgrading wireless capacity to full 5G across the island and consider using this to become a rural testbed for connected technologies in agriculture. Further promote the island as a remote working hub, attracting people from the mainland to work remotely, as well as providing more flexible work opportunities for residents of Gotland.

***To boost productivity and achieve sustained growth in the medium and long terms, the region should expand its entrepreneurial support system, strengthen innovation capacity and assure skills development***

To this end, Region Gotland should:

- **Develop business support throughout all relevant stages of the business life cycle**, addressing island-specific challenges and fostering interaction between existing stakeholders by:
  - ***Assuring the business support system covers all business life cycle stages and facilitates collaborative action.*** This includes advancing plans to set up an accelerator programme, strengthening collaboration between the university and businesses by facilitating continuous stakeholder engagement roundtables, increasing research and development (R&D) expenditure, strengthening the interaction among Gotland's clusters and various pilot projects, and supporting the upgrading of emerging clusters, the Green and Blue Centres, into single access points for knowledge.
  - ***Supporting the establishment of strong "off-island" business partnerships and networks*** by: i) upgrading the local export office by focusing on export awareness campaigns, particularly providing information specific to Gotland's industries and Baltic markets; and ii) setting up a Stockholm or mainland broker. This broker should support SMEs in promoting local products and directly liaising with possible buyers and developing synergies between existing export channels.
  - ***Improving municipal services for entrepreneurs*** by building the capacity of administrative staff through peer learning with other municipalities.

- **Increasing SMEs' digital skills** by rolling out targeted programmes that combine information and communication technology (ICT) solutions with management training, making use of young people's digital skills (i.e. in apprenticeships) and setting up advisory services to develop individualised training paths as well as updating the region's digital agenda.
- **Encouraging young people to become entrepreneurs.** This can be done by promoting youth entrepreneurship in formal educational programmes and extracurricular activities (e.g. model firms, entrepreneurship clubs and business plan competitions). Also consider setting up a mentoring programme to match younger entrepreneurs with those that have more experience, especially retired business owners, as part of a voluntary programme and developing co-working spaces across the island to allow for social interaction and networking amongst young entrepreneurs.
- **Add value to sectors of specialisation and further develop niche markets that allow for strategic diversification of the local economy by:**
  - **Further developing a “farm-to-table” culture in the agro-food and hospitality industries and supporting farms in applying technological innovations to stay competitive** by:
    - Continuing the development of a sustainable food development office that supports the development of local distribution pathways for small farm producers and contributes to educating the local hospitality industry on the benefits of buying local.
    - Further developing food tourism routes through branding and identity, including wayfinding strategies and signage, and marketing and communications.
    - Continuing to support innovation in farms to apply technology that already exists elsewhere. The Green Centre could leverage its university contacts and become a learning and mentoring hub for this.
  - **Utilising the creative and cultural potential of the island, further developing the creative and cultural sectors (CCS), like gaming, and fostering cross-sectoral innovation programmes** by:
    - Elaborating a CCS strategy defining concrete measures and roles for the development of the CCS involving relevant local stakeholders. Establishing closer co-operation between the university and Region Gotland to develop possibilities around a potential games cluster.
    - Setting up a specific incubator/accelerator (track) for CCS that, amongst other things, supports game design students to transition into becoming professional game developers. The existing cultural entrepreneurship centre or Science Park Gotland can be a platform for this.
    - Supporting cross-sectoral and interdisciplinary projects involving creative industries to bolster innovation in tourism, education, mining, energy and agriculture through creating platforms, organising events for matchmaking and linking with traditional sectors.
  - **Strengthening the bioeconomy and circular economy as well as further pushing the renewable energy transition** by:
    - Further combining technological perspectives and research with regulatory framework conditions to allow for experimentation and applied research, for instance through further development of the planned Industrial Symbiosis Park.
    - Establishing effective governance arrangements through harmonising regulatory requirements and assuring sufficient policy co-ordination across different circular and bioeconomy sub-sectors such as agriculture, food, forestry, marine, waste and energy and developing a circular economy strategy based on the regional development strategy.

- Enhancing collaboration between the emerging agro-food and aquaculture clusters, the Green and Blue Centres, in support of innovation and entrepreneurship around the food industry and saving scarce water resources.
- Developing coaching and support on circular economy and bioeconomy development, i.e. on waste efficiency in businesses and across value chains to minimise waste, saving water and other materials.
- **Address future labour market and skills needs by adjusting Gotland’s training and education system and attracting and retaining a skilled workforce needed for businesses to thrive by:**
  - **Reinforcing the anticipatory planning and strategic understanding of future skills needs in the region by:**
    - Building a solid evidence base on current and future demand for skills and engaging in foresight exercises to guide both public and private sectors to work hand in hand on skills development, recruitment and engagement with educational institutions to provide the necessary education and training.
  - **Raising the level of education and allowing for more up- and reskilling through local SMEs by:**
    - Providing regular opportunities for young people, from primary education onwards, to reflect on and discuss their prospective futures, allow students to consider the breadth of the labour market, facilitate contact with role models and provide application support.
    - Guiding SMEs to provide upskilling opportunities to their staff and assure reskilling programmes are compatible with the part-time and long-distance learning needs of the island.
  - **Making the island more attractive for teachers by:**
    - Setting up experience-sharing networks amongst teachers of different communities, supporting flexible work hours and rotation systems for itinerant teachers and/or accommodation support.
    - Further developing a national policy that condones study loans for educational professionals moving to rural municipalities, recognising that delineation according to different parts of the island might be needed to adjust for inter-regional differences.

***The region should assure a successful implementation of Gotland’s regional development strategy Our Gotland 2040 and better serve the diverse local needs throughout the island***

Region Gotland, in collaboration with other levels of government, should:

- **Continuously develop the regional government’s management capacities and digital skills as well as enable a way to better deliver public services throughout the island by:**
  - Establishing the desired skillset for a future, more efficient civil service in the region by enabling an environment within the regional government that fosters continuous development among civil servants.
  - Reinforcing the presence of regional government administrative and other services throughout the island, ensuring equitable service provision across the entire island. This can be achieved by creating territorial delegations or establishing a network of access points to services – mobile or stable – in strategic places and should be monitored and assessed based on Gotland residents’ levels of satisfaction with regional public services in rural areas.



- Strengthening collaboration with local development companies to enable them to more effectively fulfil certain responsibilities left unattended by the regional government. The presence of these companies has a positive impact on rural communities on Gotland. The regional government should support them and facilitate their work, putting in place a transparent and equal set of procedures for dialogue and interaction. Jointly developing and implementing a plan to strengthen this work can be done in alliance with the regional association of these companies, GUBIS.
- **Improve the region's ability to finance its regional development priorities** by:
  - Evaluating Gotland's regional attractiveness and complement branding efforts with concrete actions. In order to overcome Gotland's small tax base, it is important to attract new residents and businesses on a permanent basis. The region could conduct an assessment of Gotland's current features and measure their attractiveness for specific target groups (families, students, businesses in key industries, etc.). Then, the region could look for ways to reinforce its current regional branding strategy in order to attract those targeted groups by offering them concrete benefits and carrying out concrete communication actions.
  - Enhancing capacities for the management of EU funds by reinforcing the skills of regional staff in the governance of these funds, attracting additional skilled professionals, reaching out to experts/consultants, strengthening advisory mechanisms for beneficiaries and establishing better dialogue and knowledge exchange mechanisms with regional stakeholders. To achieve this, Region Gotland must seek partners in the national government and in other regions where the capacities exist and experts on the subject can be contacted or consulted.
- **Strengthen vertical co-ordination to ensure island particularities are reflected in national-level strategies, clarify assignments among levels of government and enhance accountability** by:
  - Strengthening vertical co-ordination to ensure place-based and island-proof policies to better align national and regional level development strategies and facilitate the implementation of investment projects and strategies. Region Gotland could urge the national government to seek collaborative ways to improve dialogue platforms and create regulatory instruments of national scope in order to ensure the consideration of the specific conditions and needs of the island and promote the creation of policies that are island-proof.
  - Clarifying assignments among levels of government by establishing a working group that brings together Region Gotland and the different national agencies with a presence on the island. This would help to identify critical unclear assignments and spaces for overlap and to communicate to the national government a roadmap to solve these issues. The success of such a measure will depend on collaboration between the regional government, the County Administrative Board and national agencies in the region, and should be assessed based on the comparison of the results of the same measurement instrument applied before and after the proposed roadmap was implemented.
  - Enhancing accountability by introducing new performance monitoring and evaluation mechanisms in order to improve transparency in the distribution of competencies and resources and strengthen the relationship between levels of government and between Region Gotland and the region's residents. This could be done by establishing an interoperated reporting platform that allows all actors (public agencies, private businesses, non-profit organisations and citizens) to track who (level of government, agency) does what (responsibilities), how (mechanisms, policies, projects) and with what resources (funding and transfers). A baseline of the situation must be established beforehand and should be re-evaluated in a period of three to five years.

## Note

<sup>1</sup> To better compare the performance of Gotland against relevant regions, the analysis makes use of two benchmarks, one based on comparable islands and a second based on remote regions. The islands benchmark, is made up of seven islands of similar administrative level in the EU (TL3, see Annex 4.B). The remote regions benchmark, allows to compare Gotland based on its low level of accessibility. It consists of a benchmark of 40 regions, belonging to 8 countries. The complete list is in Annex 4.A. In order to select the regions, a three-step methodology was used: i) select regions with the same rural typology as Gotland: non metropolitan remote regions, or NMR-R, according to the revised OECD classification; ii) demographic criteria: select regions with 50% above and below the population of Gotland; iii) surface area criteria: select regions with 50% above and below the surface area of Gotland.

# 1

## Socio-economic characteristics and trends

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This chapter offers a comprehensive diagnosis of the region of Gotland, Sweden. The chapter compares Gotland's development against national trends and a benchmark of other OECD islands and remote regions at Territorial Level 3 (TL3). It starts by presenting Gotland, its population and demographic trends, spatial and administrative structure, including some characteristics and challenges related to island economies. The chapter then describes Gotland's economy and labour market patterns. The final section examines key factors for regional development and the well-being of its citizens, such as globalisation, accessibility, public services and the shift to a zero-carbon economy.

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## Assessment and key findings

**Gotland has distinctive geographic and administrative characteristics.** Gotland is an island located centrally in the Baltic Sea. It has both municipal and regional powers, thus being at the same time one of the largest municipalities and the smallest region of Sweden in terms of number of inhabitants (about 60 970). The OECD classifies Gotland as a predominantly rural remote TL3 region (see Annex 4.B for explanation of OECD typology). Gotland's main city, Visby, is home to about 26 000 inhabitants and offers a large share of jobs, infrastructure, trade and services of the island. Close to 60% of Gotlanders live outside Visby.

**As an island, Gotland faces a number of specific challenges and opportunities.** Insularity plays an important role in shaping Gotland's socio-economic development as well as its identity and culture. As an island economy, Gotland must address a lack of critical mass, vulnerability to climate change (e.g. summer droughts and sea level rise), remoteness to international markets, higher costs to deliver services, seasonality and difficulties in attracting high-skilled labour. Notwithstanding these challenges, it also possesses a number of important assets including raw materials, a high potential for renewable energy, a high-quality university, very good broadband connectivity and a relatively diversified economy, making it an attractive location for tourists and internal migrants<sup>1</sup> alike.

**Geography and accessibility determine settlement patterns on Gotland.** Gotland's population has been growing in recent years due to migration flows. Most migrants are nationals coming from the coastal mainland, especially from Skåne, Stockholm and Uppsala and are working-age families with children. Although Gotland is performing better than benchmark islands, its population is growing slower than the Swedish average and settlement patterns remain uneven across the island. At the same time, Gotland's population is ageing. Gotland's demographic trends point to growing youth and elderly dependency ratios and a reduction of the working-age segment despite an influx of migration. Elderly dependency on Gotland is well above the Swedish average and the remote regions benchmark but similar to other island regions. These demographic trends present a number of challenges for both the delivery of public services and the sustainability of traditional economic sectors given that farmers, teachers and other occupations need to find successors.

**Gotland's economy is lagging in the Swedish context but performing above peer regions.** Gotland has a relatively well-developed regional economy and outperforms comparable benchmark regions from European Union (EU) islands and OECD remote rural regions across a wide range of indicators. Yet, it can be considered less competitive than other Swedish regions. Gotland's gross domestic product (GDP) is below the national average but stands significantly higher than peer islands and remote regions. Also, in terms of productivity, Gotland displays the lowest level across Swedish regions but performs better than the islands benchmark and similarly to remote regions.

**Despite its island economy, Gotland is a relatively diversified region.** Gotland's economy is dependent on the public sector, which contributes to 26% of gross value added (GVA), and trade and transport (18.2%). The remaining sectors do not each produce more than 10% of GVA: industry (9.9%), real estate (7.9%), construction (7.4%), general services (7.4%), manufacturing (6.8%), agriculture, forestry and fishing (6.1%). Amongst these, tradeable activities represent around 25% of the regional economy. Gotland's small- and medium-sized enterprises' (SMEs) share of national exports (60%) ranked second in 2018, demonstrating the importance of SMEs for the island. Nevertheless, Gotland's limited size and export capacity makes it, in per capita terms, the least export-driven Swedish region.

**The labour market on Gotland is diversified but small and seasonally dependent.** The labour market on Gotland is relatively diversified across the island despite its small size. The employment rate for 15-74 year-olds on Gotland in 2016 (63.3%) was below the national average (67.1%). Apart from the public sector, the island is specialised in primary sectors, including agriculture and material processing activities, particularly quarrying and cement production. These are complemented by a strong tourism sector, which largely depends on Swedish tourists. Unemployment on Gotland has remained stable over the past 15 years, fluctuating between 6% to 8%, in line with the national trend. When compared to remote regions, Gotland records much lower rates, while they are higher if compared to peer EU island regions. Despite its good education system, Gotland records lower levels of education than the national average and also faces relatively high student dropout rates before reaching university, making it difficult for employers to find highly skilled workers.

**Megatrends create challenges but also new opportunities for Gotland, which must be able to adapt and equip itself adequately.** The COVID-19 pandemic has triggered a profound process of rethinking the organisation of production systems, trade and supply chains, as well as the provision of services and the utilisation of new technologies, globally but also regionally and locally. In this new context, development policies for Gotland should aim at increasing productivity over the medium to long run by maximising the potential agglomeration benefits of its capital city Visby, fostering innovation across the entire entrepreneurship ecosystem in the region and making the most of its central position in the Baltic Sea to reach new markets. The island also needs to do more to attract and retain skilled labour and address existing bottlenecks in land use and the real estate market. The university has a central role to play in training a skilled workforce and in linking the island to international knowledge hubs. At the same time, Gotland should take advantage of opportunities related to its green economy potential and digital connectivity. This will enable further economic diversification and add more value to existing areas of economic specialisation. All this will require effective local and regional governance and strong multi-level governance relations.

## Introduction

This chapter provides a summary of the main strengths and challenges Gotland faces at the regional level. It takes stock of the main trends observed on Gotland and compares these to other similar OECD islands and rural territories. The chapter comprises three main sections. It begins by presenting an overview of the geographic and settlement context in the region. It then looks at the economic performance on Gotland and its level of well-being over the past years including during the recent COVID-19 pandemic, with that of comparable OECD regions. The chapter then examines the enabling factors that can enhance well-being in the region.

To better compare the performance of Gotland against relevant regions (see full list in Annex 4.A), the analysis in the chapter makes use of two benchmarks, one based on comparable islands and a second based on remote regions:

- The **islands benchmark** is made up of seven islands of similar administrative level (TL3). Each island has its own particular characteristics (surface, population, geography) but also faces similar constraints and characteristics as Gotland. The islands include EU medium-sized islands within the EU islands classification:
  - The islands of Åland, Finland.
  - Bornholm, Denmark.

- Chios, Samos and Zakynthos, Greece.
- The islands of Lewis and Harris, and Orkney, United Kingdom.
- The **remote regions benchmark** is developed to explore the challenges Gotland faces based on its low level of accessibility, and therefore similar in characteristics to a remote region. It consists of a benchmark of 40 regions from 8 countries. The complete list is in Annex 4.A. In order to select the regions, a three-step methodology was used:
  - Select regions with the same rural typology as Gotland (non-metropolitan remote regions, or NMR-R, according to the revised OECD classification – see also Annex 4.B).
  - Select regions within 50% above and below the population of Gotland (demographic criteria).
  - Select regions within 50% above and below the surface area of Gotland (surface area criteria).

In addition, benchmarks against the national average and OECD average are also conducted for select indicators:

- The **national average** compares to the national average in a certain number of indicators, to understand the performance of a region relative to other regions in the country, its strengths and weaknesses.
- The **OECD country average** aims to put into perspective Gotland's performance in relation to all TL3 regions from the OECD's 38 member countries.

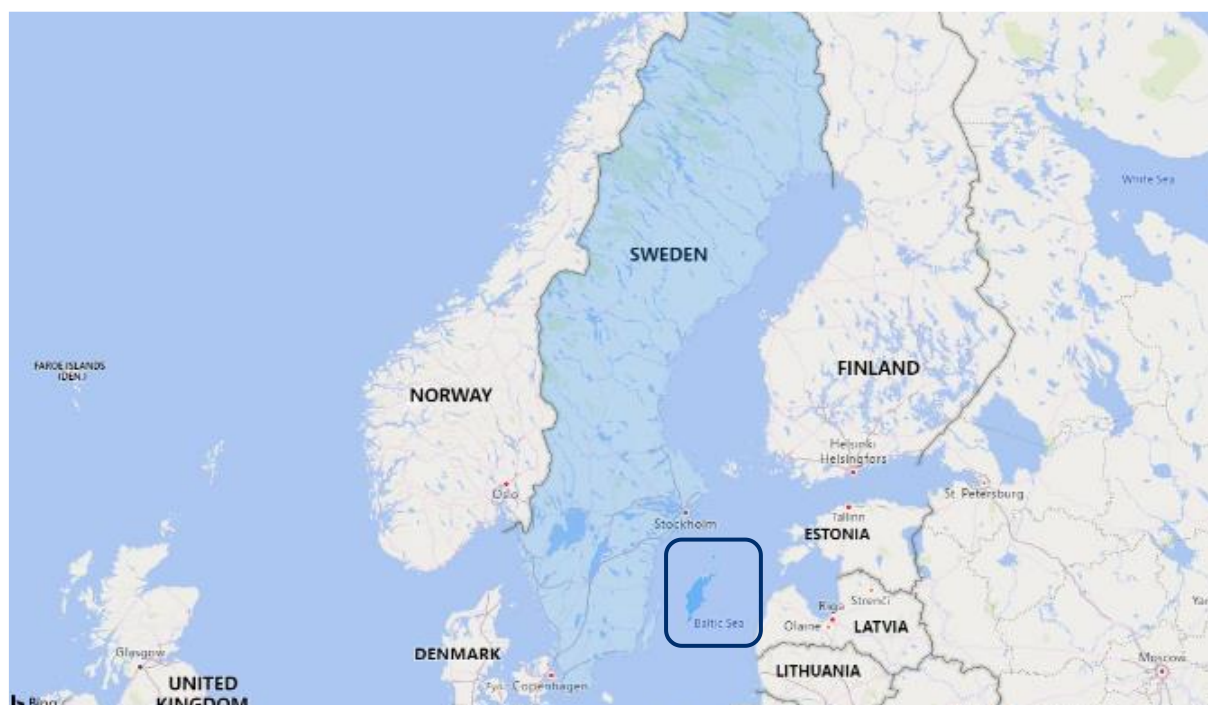
## Gotland location, geographic conditions and settlement patterns

### *Geographic characteristics are unique on Gotland*

Gotland is a unique territory in Sweden. While the country has numerous islands and long coastal lines, the region of Gotland is by far the largest island and is located the furthest from the mainland. Gotland is also the largest island in the Baltic Sea (3 140 km<sup>2</sup>). It represents only 0.8% of Sweden's land area, slightly smaller than the region of Stockholm. With a population of about 60 970 (Statistics Sweden, 2021<sup>[1]</sup>), Gotland is the least populated Swedish region.<sup>2</sup> It is located in the centre of the Baltic Sea (Figure 1.1). The distance to mainland Sweden is about 90 km. If measured according to the ferry locations, from Gotland's main city Visby, distances are about 150 km to Nynäshamn, 120 km to Oskarshamn and 100 km to Västervik. About 150 km separates the fishing port of Herrvik in eastern Gotland from the coast of Latvia. Gotland's population density (population per square kilometre) is lower than the national average (19 compared to 24) (Region Gotland, 2021<sup>[2]</sup>). Apart from being an island, it is also a predominantly rural remote region according to the OECD TL3 revised typology (see Annex 4B). Visby is home to about 26 000 inhabitants and concentrates a large share of jobs, infrastructure, trade and services of the island. Close to 60% of Gotlanders live outside Visby.

Along with significant governance and service delivery responsibilities relative to its population size and administrative capacity, Gotland enjoys a strong cultural and regional identity built through history and local conditions, a rich environmental ecosystem and one of the most important limestone reserves used for cement production in Sweden (SGU, 2018<sup>[3]</sup>).<sup>3</sup>

**Figure 1.1. Gotland's location in the Baltic Sea**



Source: Own elaboration with PowerBI with data from Statistics Sweden (2021<sup>[4]</sup>), “Gotland - minskad arbetslöshet”, [https://tillvaxtverket.se/statistik/regional-utveckling/lansuppdelad-statistik/gotland.html?chartCollection=8#svid12\\_a48a52e155169e594d5b3e6](https://tillvaxtverket.se/statistik/regional-utveckling/lansuppdelad-statistik/gotland.html?chartCollection=8#svid12_a48a52e155169e594d5b3e6).

### ***As an island, Gotland faces a number of specific challenges and opportunities***

Insularity determines the development trajectory of islands – Gotland is no exception. Insularity describes a phenomenon of permanent physical discontinuity and peripherality deriving from particular geomorphological conditions in connection to specific social, cultural and economic factors (see Box 1.1). Economically, islands often depend on primary sector activities (e.g. agriculture and fisheries), hyper-specialisation (e.g. either in the primary or the tertiary sector) or seasonal activities (e.g. tourism). In general, long-term development perspectives are fragile even on high performing islands, because of the predominance of low value-added activities based on the exploitation of often-scarce resources (ESPON, 2013<sup>[5]</sup>). Overall, islands often face less favourable conditions for economic growth and general well-being than the mainland. On many islands, incomes tend to be lower, infrastructure and services costlier, investment more demanding and means of transport poorer. In addition, many islands suffer from a limited supply of resources such as water, energy, living space and arable land (CoE, 2005<sup>[6]</sup>).

These bottlenecks and a lack of economic diversity accentuate the vulnerability of island economies to fluctuations in macroeconomic conditions and to global megatrends (CoE, 2005<sup>[6]</sup>), which include globalisation, population ageing and migration, technological change (e.g. automation, decentralised energy production and the Internet of Things) and climate change. However, island and rural economies, such as Gotland, are also endowed with valuable means to tackle these challenges, such as strong local identities and an abundance of natural resources (OECD, 2020<sup>[7]</sup>).

Table 1.1 provides an overview of possible vulnerabilities and potential opportunities facing island economies, including Gotland.

**Table 1.1. Challenges and opportunities facing island economies**

Themes	Challenges	Opportunities
Economic	<ul style="list-style-type: none"> <li>• Lack of critical mass (e.g. local market size and narrow production base)</li> <li>• Geographic isolation and transport costs</li> <li>• Integration with national communications and energy networks</li> <li>• Low level of innovation</li> <li>• Lack of qualified labour and professional development</li> </ul>	<ul style="list-style-type: none"> <li>• Diverse tourism offer (natural, recreational, business, cultural, health and well-being)</li> <li>• High-quality, diverse food production (agriculture and fisheries)</li> <li>• Entrepreneurial spirit and "can do" mindset</li> <li>• Blue economy</li> </ul>
Environment	<ul style="list-style-type: none"> <li>• Seasonality/sustainability of tourism</li> <li>• Vulnerability to climate change and natural hazards</li> <li>• Complex land use planning and sensitive environmental management issues (e.g. waste, water and sanitation)</li> </ul>	<ul style="list-style-type: none"> <li>• Green economy, renewable sources of energy</li> <li>• Natural resources and high levels of natural and man-made amenities</li> <li>• Unique biodiversity and ecosystem services</li> </ul>
Social and institutional	<ul style="list-style-type: none"> <li>• Ageing population, migration trends and "brain drain"</li> <li>• High cost of services</li> <li>• Diseconomies of scale (higher unit costs for infrastructure and public services)</li> </ul>	<ul style="list-style-type: none"> <li>• Quality of life</li> <li>• Close social ties and community support structures</li> <li>• Territorial attractiveness/cultural heritage and histories</li> </ul>

Source: OECD (forthcoming<sup>[8]</sup>), "Island economies", OECD Publishing, Paris.

### Box 1.1. Characteristics of island economies

Islands are a key feature of the national territory of many countries. In the OECD, Sweden (267 570 islands), Norway (239 057), Finland (178 947) and Canada (52 455) have the most islands (WorldAtlas, 2021<sup>[9]</sup>). In the EU, islands account for over 20.5 million inhabitants, about 4.6% of the entire population of the EU-27 (Haase and Maier, 2021<sup>[10]</sup>). In the case of some European countries such as Greece, Italy and Spain, these constitute up to 20% of their territory with up to 12% of their population (EU, 2017<sup>[11]</sup>).

The term "island" is a very wide notion<sup>4</sup> and is not easily defined. The only fixed, shared commonality is the fact that they are surrounded by water. Apart from that, islands differ greatly in many characteristics, such as size, administrative configurations, geographical location (e.g. proximity or remoteness from the mainland) and population size. Despite this, many islands share additional common and specific permanent characteristics that clearly distinguish them from mainland territories (CoE, 2005<sup>[6]</sup>). These are generally described within the concept of "insularity". Insularity does not refer merely to a geographical situation but rather to a phenomenon of permanent physical discontinuity and peripherality deriving from a particular geomorphological condition in connection to specific social, cultural and economic factors (ESPON, 2013<sup>[5]</sup>; Deriu and Sanna, 2020<sup>[12]</sup>). From the socio-economic point of view, insularity, especially on small islands, includes limitations in economic activity (e.g. tourism), reliance on subsistence economy and in some instances dependence on public subsidies. In addition to their specialised nature and limited diversity of economic activities, many island economies are also experiencing development constraints related to environmental vulnerability, limited local market size and inadequate and/or costly transport links with the mainland.



Overall, there are two main strands of economic analysis connected to islands:<sup>5</sup>

- First, analysis based on the concepts of small scale. The findings highlight that small markets, small pools of human resources, limited capital, etc., are typical of many islands and can become bottlenecks that slow down socio-economic development and hamper the efficiency of public administration.
- Second, the challenges related to the geographic position, including issues of peripherality, isolation and remoteness of islands. Thus, the geographic position and nature of the islands, characterised by the concept of insularity, are characteristics identified essentially as a handicap that hinders the ability of these territories to reach the same standards of quality of life, e.g. in relation to the provision of the same or similar level of services and work opportunities offered on contiguous continents (Deriu and Sanna, 2020<sup>[11]</sup>).

Source: World Atlas (2021<sup>[9]</sup>), *World Map/World Atlas/Atlas of the World Including Geography Facts and Flags*, <https://www.worldatlas.com/> (accessed on 13 December 2021); Haase, D. and A. Maier (2021<sup>[10]</sup>), *Islands of the European Union: State of Play and Future Challenges*, European Parliament; EU (2017<sup>[12]</sup>), "European Economic and Social Committee on "The islands of the EU: from structural disadvantage to inclusive territory"", 2017/C 209/02, Official Journal of the European Union; CoE (2005<sup>[6]</sup>), "Development challenges in Europe's islands", <https://assembly.coe.int/nw/xml/XRef/X2H-Xref-ViewHTML.asp?FileID=10912&lang=EN>; ESPON (2013<sup>[5]</sup>), *ESPON 2013 Programme: The Development of the Islands-European Islands and Cohesion Policy (EUROISLANDS)*, <https://www.espon.eu/programme/projects/espon-2013/targeted-analyses/euroislands-development-islands-%E2%80%93-european-islands> (accessed on 13 December 2021); Deriu, R. and C. Sanna (2020<sup>[11]</sup>), "Insularità: una nuova Autonomia attraverso la cooperazione tra le Regioni insulari euromediterranee", <https://www.sipotra.it/wp-content/uploads/2020/03/Insularit%C3%A0-una-nuova-Autonomia-attraverso-la-cooperazione-tra-le-Regioni-insulari-euromediterranee.pdf> (accessed on 13 December 2021).

### **Gotland has a unique administrative composition**

*The region is the only one in Sweden that is both a municipality and a region*

Sweden is divided into 290 municipalities and 21 counties or regions (TL3). Municipalities and regions have their own self-governing local authorities with different responsibilities. Differently from the other local and regional governments in Sweden, Gotland has both municipal and regional powers, thus being at the same time one of the largest municipalities and the smallest region of Sweden (SKR, 2021<sup>[13]</sup>). The region and municipality also function on the same budget (Region Gotland, 2021<sup>[2]</sup>).

Sweden's municipalities and regions are responsible for providing a significant proportion of all public services. They have a considerable degree of autonomy and independent powers of taxation. Local self-government and the right to levy taxes are stipulated in the Instrument of Government, one of the four pillars of the Swedish Constitution.<sup>6</sup> Gotland's governance and subnational finance system and responsibilities will be discussed in detail in Chapter 4.

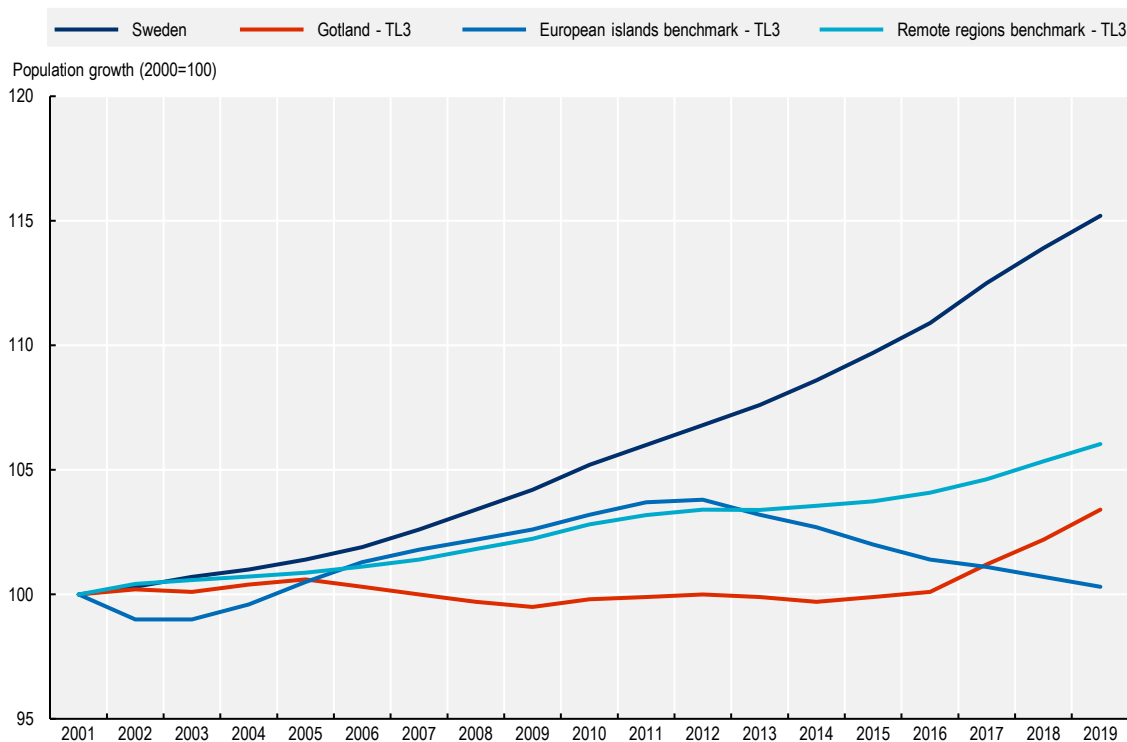
### **Geography and accessibility determine settlement patterns on Gotland**

*Gotland's population is growing slower than the Swedish average but faster than other islands, with uneven settlement patterns across the island*

The demographic situation of Gotland is characterised by recent population growth and dependence on (internal) migration. While the population in Sweden as a whole has increased steadily during the last decades, the population on Gotland has been more uneven. The rate of population growth is lower than the Swedish average (3.4% in the period 2001-19 compared with the Swedish average of 15.2%) (Figure 1.2). Since 2014, however, the island has experienced rapid population growth from around

57 000 to 59 700 people in 2019, surpassing 60 000 inhabitants for the first time in 2020 (Region Gotland, 2021<sub>[2]</sub>).

**Figure 1.2. Population of Gotland, TL3 benchmarks and Sweden, 2001-19**



Note: The figure represents population growth using the year 2000 as the base year (2000=100).

Source: OECD.stat (2021<sub>[14]</sub>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

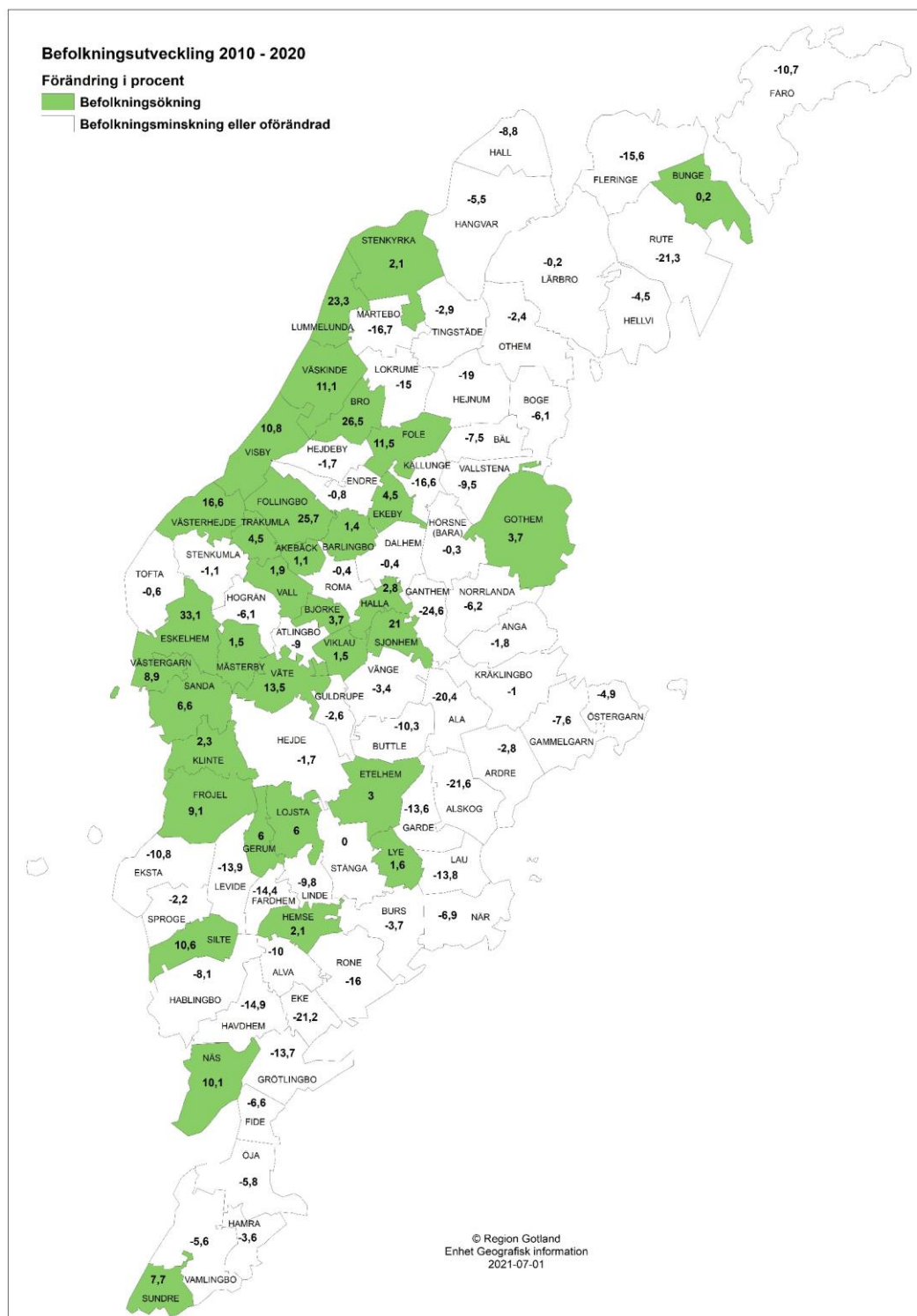
This constant growth that occurred with the recovery from the economic and financial crisis of 2008, has been entirely driven by migrants from other regions of the country, while the natural population growth has been in decline as deaths exceeded birth (Trinomics, 2021<sub>[15]</sub>). Figure 1.2 also shows that Gotland's population growth is similar to OECD remote regions but different from European islands. The islands have suffered a sharp decline since the financial crisis and are no further ahead now than they were 20 years ago.

Within Gotland, different settlement trends are present across the different parishes in terms of population growth, with some prospering more than others. Gotland is made up of 92 parishes,<sup>7</sup> most of which have a fairly low number of inhabitants. Over 2010-20:

- About 59 parishes have declined in population – the largest decreases can be found in Ganthem (-24.6%), Alskog (-21.6%) and Rute (-21.3%).
- Eskelhem (+33%), Bro, (26.5%) and Follingbo (+25.7%) have the highest growth rates (Figure 1.3). In general, the largest increases in population growth can be found on the west coast of the island, in close proximity to Visby. This may be due to the fact that many people live outside but commute to work in the regional capital.

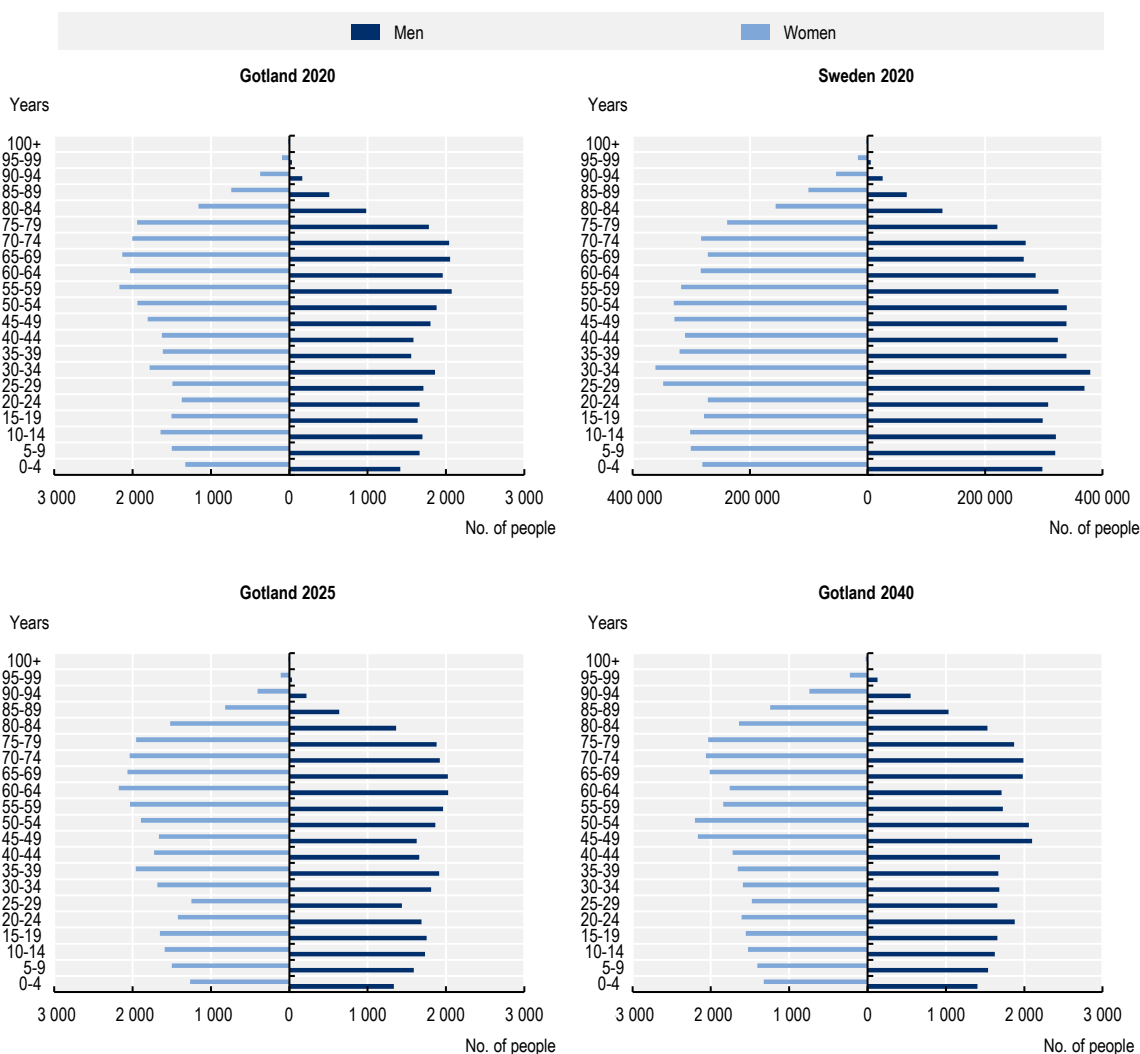
**Figure 1.3. Population trends in Gotland's parishes, 2010-20**

Percentage change, population increase (green) vs. population decline or unchanged (blank)



Source: Statistic Sweden (2021<sup>[16]</sup>), Homepage, <https://www.scb.se/>.

Figure 1.4. Age structure projections for Gotland, 2022, 2025 and 2040, and Sweden, 2020

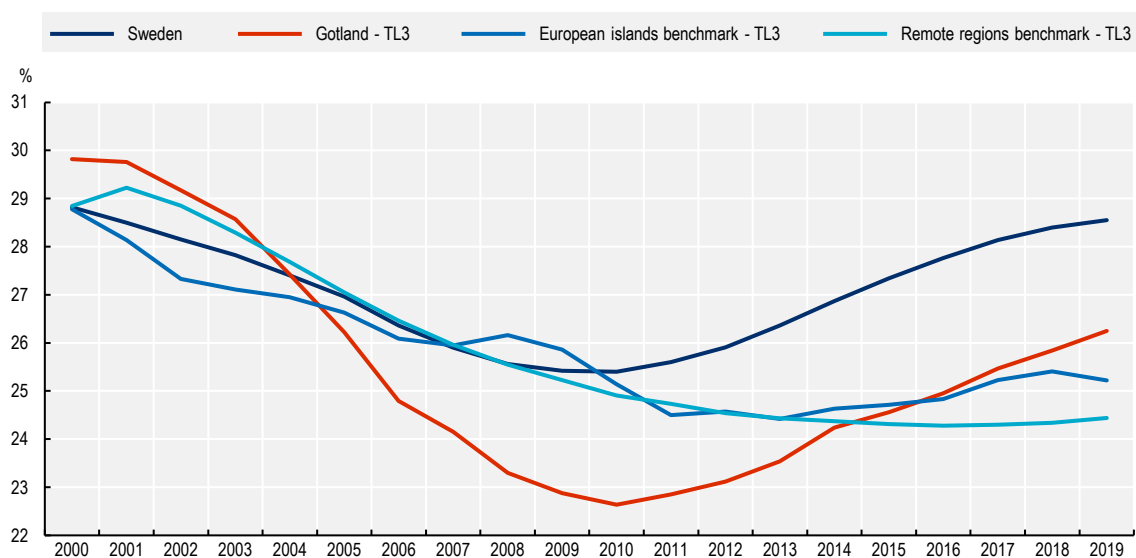


Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

The average age on Gotland in 2020 was 45.2 years and the average life expectancy was 84.3 years for women and 80.6 for men. The share of the elderly population (percentage of population aged 65 or more) was 26.1% on Gotland compared to the national average of 22.1%. Gotland is also the county with the highest share of elderly people in all of Sweden, the region with the fastest growth rate, increasing 4.8% between 2010 and 2020, compared to a Swedish average increase of 2.2% (Statistics Sweden, 2021<sup>[17]</sup>). Furthermore, during the COVID-19 pandemic, the size of the non-resident retired/elderly population increased, leading to growing demands on health and community services (Gotland's Project Team, 2021<sup>[18]</sup>).

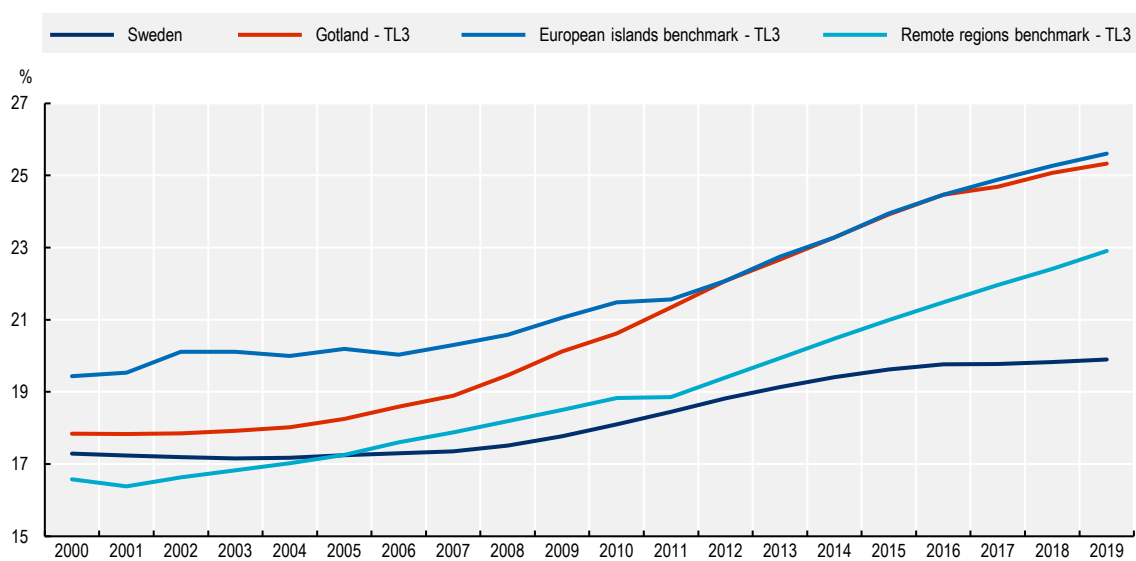
An influx of working-age adults with children (Figure 1.8) has brought growth to Gotland's youth dependency ratios, which now exceed both island and remote region peers (Figure 1.5). However, Gotland's population is ageing. Figure 1.6 shows that elderly dependency on Gotland is high and growing, well above the Swedish average and the remote region benchmark, and in line with other island regions.

**Figure 1.5. Youth dependency ratio, 2000-19**



Source: OECD.stat (2021<sub>[14]</sub>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

**Figure 1.6. Elderly dependency ratio, 2000-19**



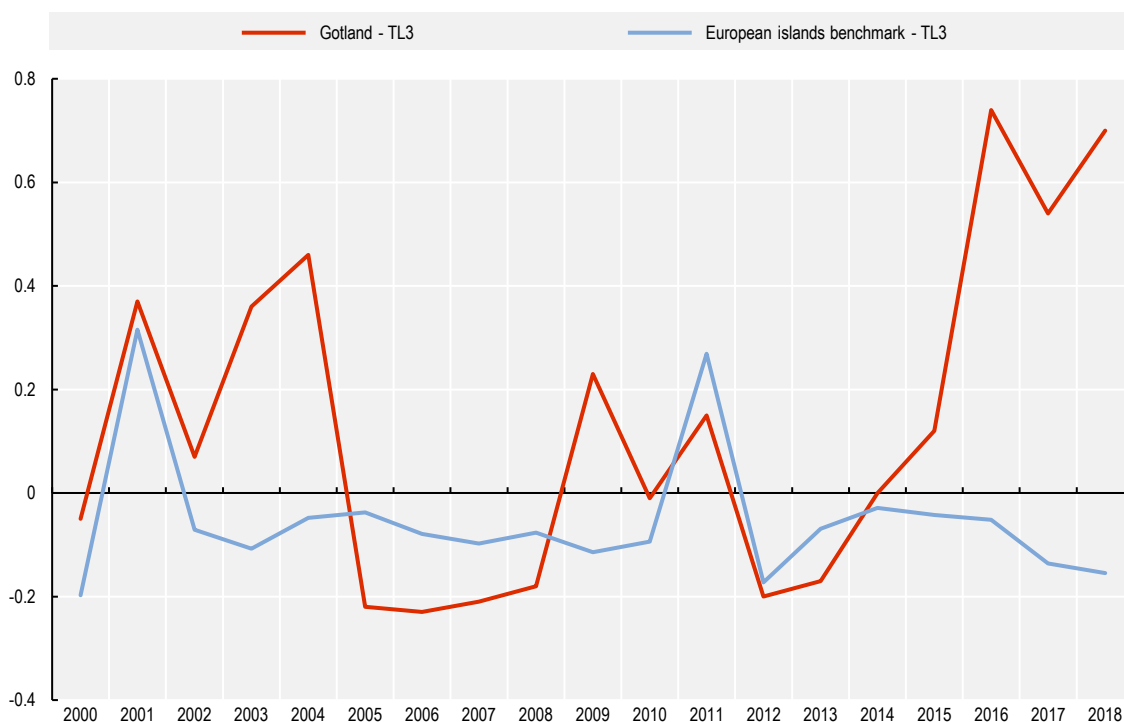
Source: OECD.stat (2021<sub>[14]</sub>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

*Internal migration results in population growth but the working-age segment is still reducing*

Like in many TL3 island benchmark regions, the (internal) migration trend on Gotland has been uneven in the last 20 years (Figure 1.7). Between 2015 and 2017, a steep increase is visible in migration. This might also be linked to the large number of refugees who arrived in Sweden in 2015 and 2016 and were distributed across the territories.

Although Gotland experienced outmigration in its young adult group (15-34 year-olds) between 2005 and 2015, the flow has reversed across all age groups in recent years. While fewer young adults have been leaving the region, Gotland has also seen a steady inflow of core working-age adults (35-54) with children. At the same time, migration in age groups more than 55 years of age has increased in recent years (Figure 1.8). In 2020, around 2 850 people migrated to Gotland and 2 250 left the island. Domestic migration accounted for almost 85% of the demographic changes. The inflows and outflows occurred mainly to and from Götaland, Skåne, Stockholm, Västra and Uppsala. Foreigners on Gotland are about 9.4% less than the average of Swedish counties, ranked bottom, just after Jämtlands (12.1%) and Västerbotten (13.2%) (Statistics Sweden, 2021<sup>[4]</sup>) (Figure 1.9). Finland is the most common country of origin for foreign residents, followed by Syria, Germany, Poland and Norway (Region Gotland, 2017<sup>[19]</sup>).

**Figure 1.7. Regional net migration, Gotland and TL3 islands benchmark, 2000-19**

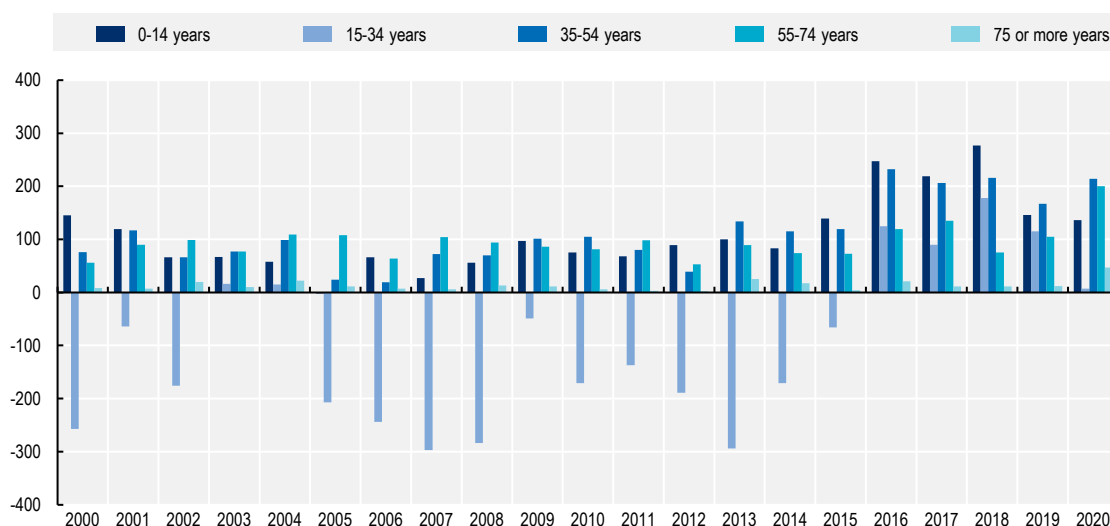


Note: The horizontal line shows that the inflow and outflow are equal, and therefore have not produced a migration imbalance. A positive value indicates that the region has a positive migration balance and a negative value indicates that people have left the region to a greater extent.

Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

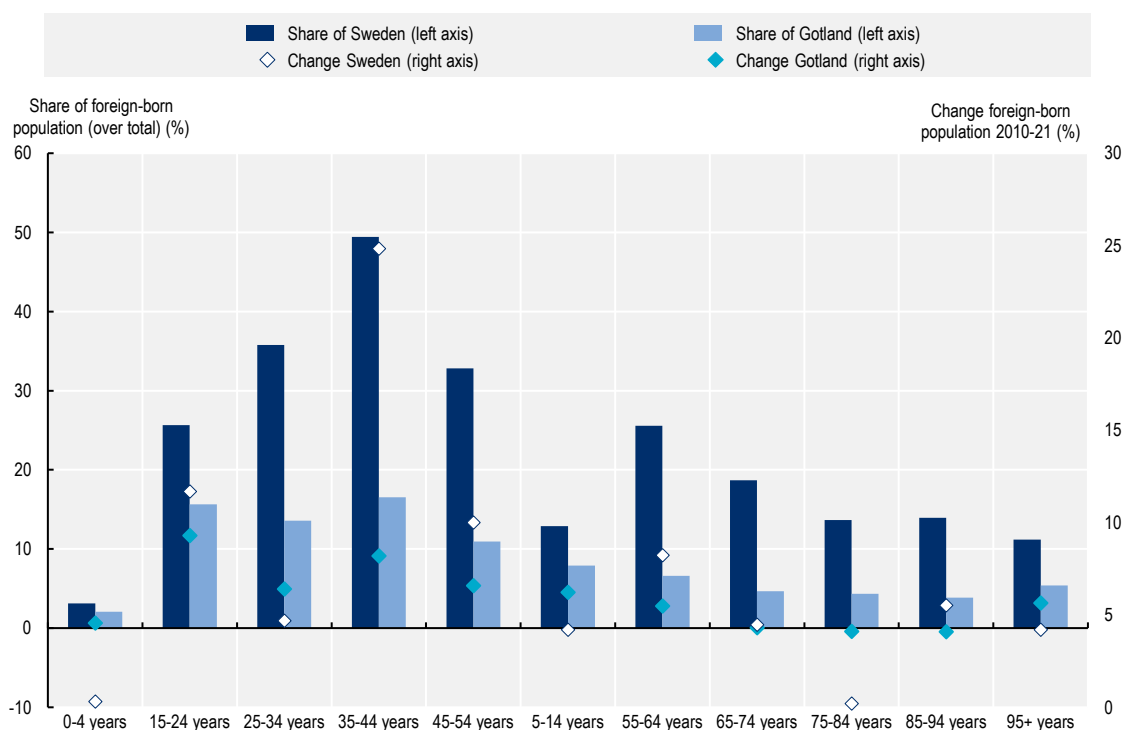
Gotland's foreign-born population<sup>8</sup> in 2020 stood at 5% of the total, 3 times less than the national average (17%) (Figure 1.9). In terms of age groups, the foreign-born population occupies the highest share in the 15-44 age group (9% in the 25-34 age group and 7% in the 35-44 age group). In the case of Sweden, the age group is the same but with much higher shares at around 24% of the population. The age groups in which foreign-born people are least present are the youngest (1 to 24 years old) with 3% of the total and, from 75 years of age onwards, it starts to decrease to 2% of those over 95 years of age who came to settle on the island in the past. The same trend is observed at the country level, with the youngest (3%) and the oldest (7%) having the least weight in the total population.

**Figure 1.8. Migration balance by group of age, 2000-19**



Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

**Figure 1.9. Share of foreign-born population over total population and change, Gotland and Sweden, by age group, 2010-21**



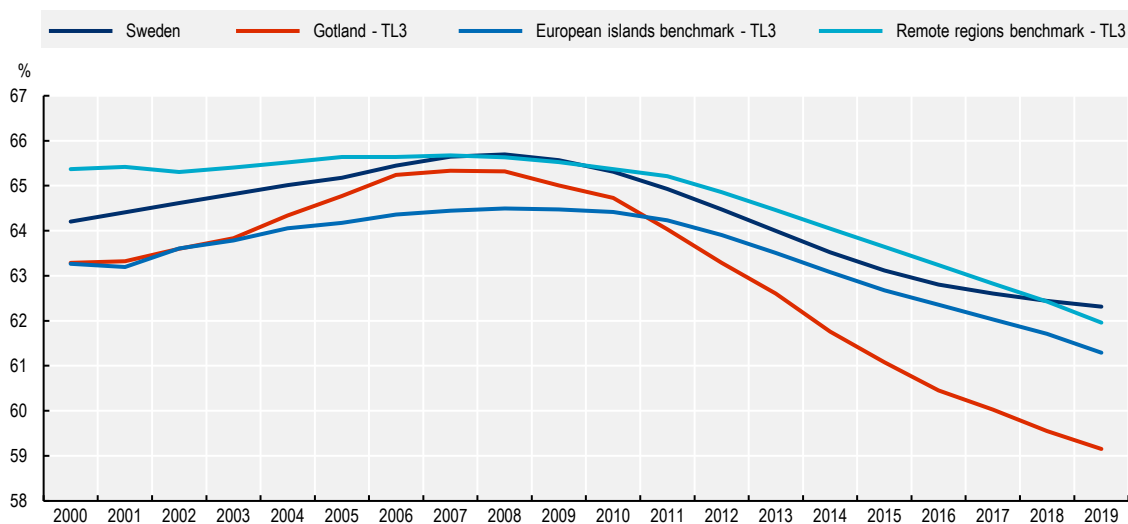
Note: Each age group (X-axis) has a different share of the foreign-born population (vertical columns on the lefthand Y-axis). Moreover, the change in this share over the last decade is represented by the markers on the graph (righthand Y-axis).

Source: Statistics Sweden (2021<sup>[4]</sup>), "Gotland - minskad arbetslöshet", [https://tillvaxtverket.se/statistik/regional-utveckling/lansuppdelad-statistik/gotland.html?chartCollection=8#svid12\\_a48a52e155169e594d5b3e6](https://tillvaxtverket.se/statistik/regional-utveckling/lansuppdelad-statistik/gotland.html?chartCollection=8#svid12_a48a52e155169e594d5b3e6).

The inflow of many internal Swedish and international migrants has led to an increase in the population but not in the working-age segment. In 2019, the working-age population as a share of the total population has declined in comparison to 2000, from 63.3% to 59.15% (Figure 1.10). According to Statistics Sweden's latest population projection, Gotland is estimated to reach about 65 000 inhabitants by 2030 and rise to over 70 000 by 2070. The same projections suggest that the decline of the working-age population (15-64 years) will stop in the next decade and remain stable at around 55% of the population in the following years (Statistics Sweden, 2021<sup>[20]</sup>). It would therefore seem that the island's job market may remain in a fairly healthy condition at least for the next years. This, however, depends on the continued trend in migratory flows that are supporting this trend. In fact, according to projections, natural population growth will continue to be negative on Gotland (Trinomics, 2021<sup>[15]</sup>). Without a steady stream of new arrivals, a decline both in terms of the total working-age population and in absolute terms would be inevitable. The percentage of the elderly population is estimated to rise to around 30% by 2060 and young people will make up 17% of the population in the next 40 years.

Gotland's older population profile is likely to create a higher demand for health and other key services in the future. It also results in a smaller potential labour force than other regions in Sweden. Figure 1.9 shows a similar share of the working-age population (15-64 year-olds) over the total population, which amounts to 59% on Gotland, 62% in Sweden, 61% in the TL3 European islands benchmark and 62% in TL3 remote regions. As the proportion of the working-age population decreases, the shortage of labour force will intensify. Already, in 2020, about 24% of employers in the Gotland business community declared difficulties in finding labour with the appropriate skills<sup>9</sup> (Region Gotland, 2021<sup>[21]</sup>). The island's demographic challenge in terms of the ageing workforce is particularly relevant in some key sectors such as ageing/retiring farmers, teachers, doctors and public administration.

**Figure 1.10. Share of the working-age population (15-64 year-olds) over the total population**



Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

## Assessing Gotland's economic competitiveness

### ***Gotland is lagging in the Swedish context but performing above peer regions***

Gotland's geographic location shapes its settlement pattern and economic performance. As an island economy, it must address the lack of critical mass, remoteness from international markets, higher service

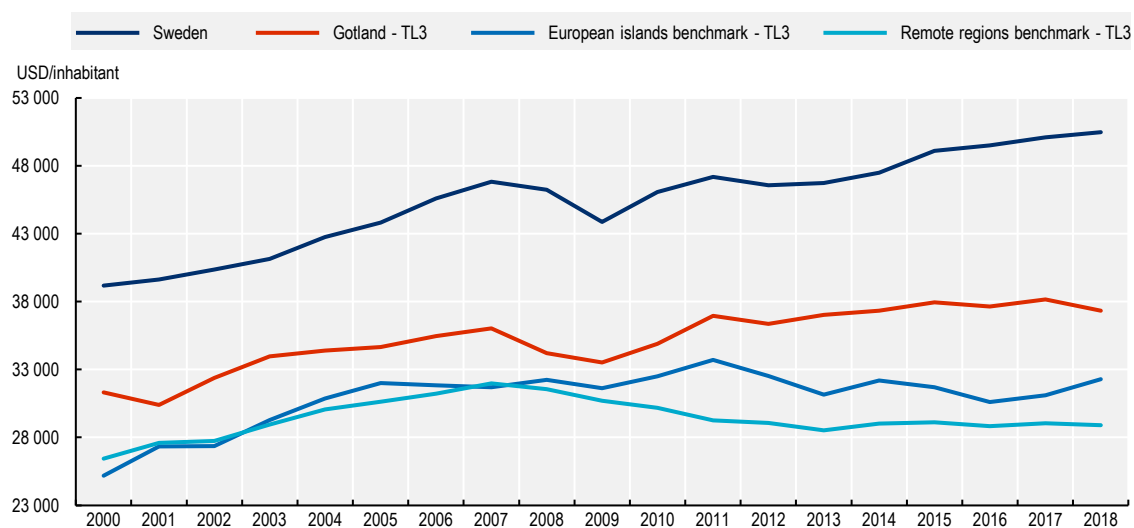


delivery costs, seasonality and difficulties in attracting high-skilled labour. Yet, it also contains to its advantage a number of assets including raw materials, a high potential for renewable energy, a high-quality university, a relatively diversified island economy and an attractive location for tourism and migrants (from Sweden and abroad) alike. This section examines the trends in Gotland's economy and benchmarks these against the national trend and with comparable regions from the island as well as remote locations across a number of economic indicators. The next section will then examine some critical enabling factors that can help raise the competitiveness of the economy and improve the well-being of its island inhabitants.

Although Gotland records the lowest GDP per capita amongst Swedish counties in 2019 (Regionfakta, 2021<sub>[21]</sub>), it demonstrates a good standard of living when compared to the other OECD benchmark regions. The island recorded a GDP per capita of USD 37 323 (purchasing power parity, PPP) in 2018, below the OECD (USD 45 217) and the national average (USD 50 473) but above the level of comparable islands (USD 32 925) and remote regions (USD 28 904) (Figure 1.11).

The gap in GDP per capita with respect to the national average has widened over the past 2 decades, from 20% below the average in 2000 to 26 below in 2018. When compared to peer regions, however, Gotland's economy has performed well since 2009, its GDP per capita growing on average by 1.2% annually, against a lower rate (0.23%) observed in peer island regions and a contraction (-0.67%) in remote regions over the same time period.

**Figure 1.11. Trends in GDP per capita (USD PPP) on Gotland, in Sweden and peer regions, 2000-18**



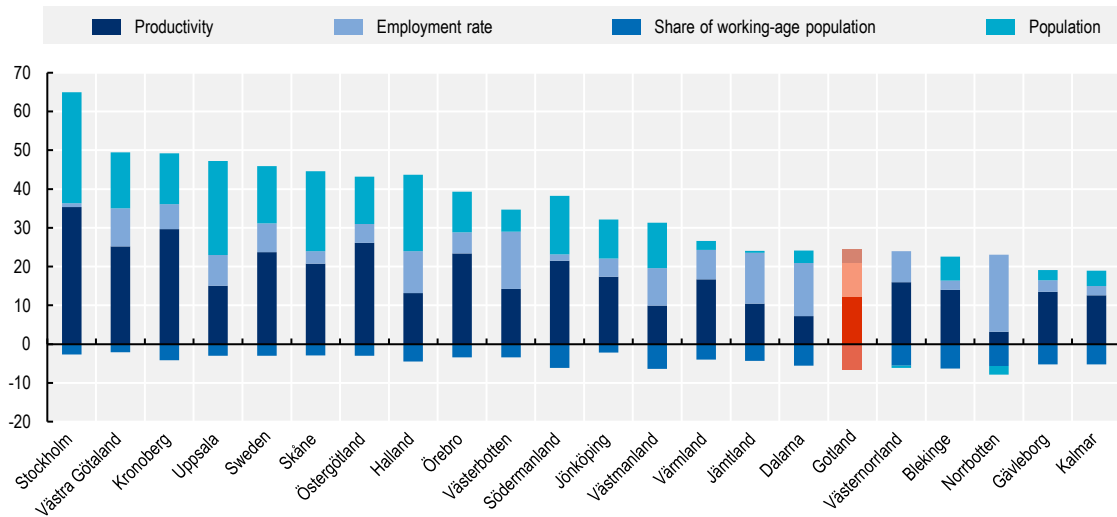
Source: OECD.stat (2021<sub>[14]</sub>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

Despite its small size, Gotland's contribution to GDP growth over the last two decades was above that of five larger Swedish regions: Blekinge, Gävleborg, Kalmar, Norrbotten and Västernorrland (Figure 1.12) (OECD, 2021<sub>[22]</sub>). A growth decomposition analysis also displays the important role productivity growth played in the growth contribution, followed by gains in the employment rate. In contrast, demographic factors (population growth) had a much lesser role and, in particular, a reduction in the share of the working-age population even had a negative contribution.

Thus, GDP growth is driven on Gotland by a significant increase in productivity (12.1%), followed by the employment rate (8.8%) and, as in the country's other regions, slowed down by the fall in the share of the working-age population (Figure 1.12). Stockholm, in fact, has productivity values that have pushed GDP growth (35.4%), followed by population growth (28.5%).

**Figure 1.12. GDP growth varies considerably across Swedish regions, 2000-18**

Contributions to real gross domestic product, percentage change, TL3 regions



Note: Data are adjusted for changes in the perimeter of some regions during the period. This has a minor impact on the results.

Source: OECD (2021<sup>[22]</sup>), *OECD Economic Surveys: Sweden 2021*, <https://dx.doi.org/10.1787/f61d0a54-en>

### ***Productivity grew faster than in other islands but lags to national standards***

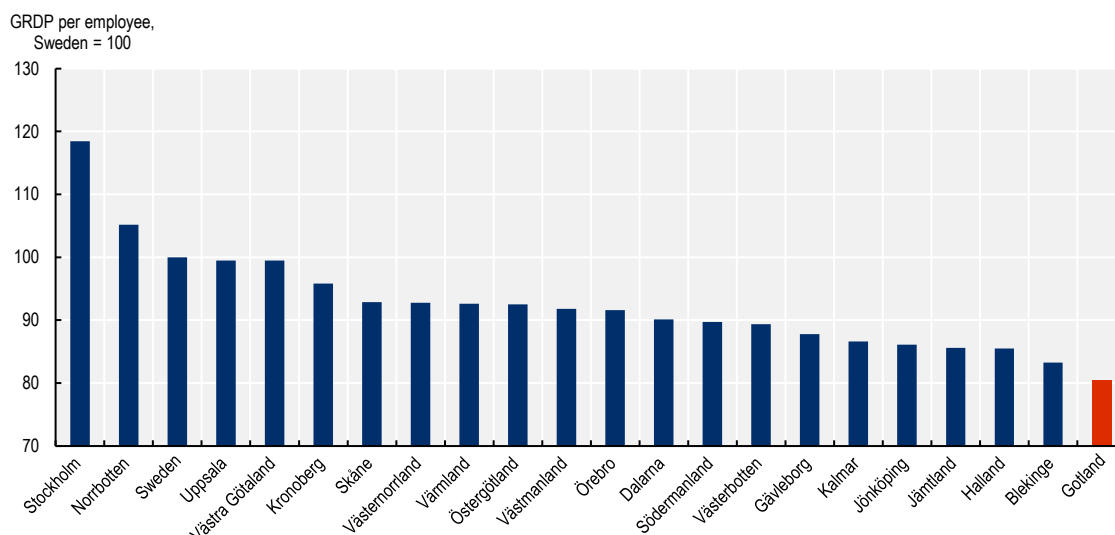
A megatrend that is affecting almost all OECD countries alike is population ageing and decline. In order to ensure economic growth remains resilient against this phenomenon and sustainable over the medium and long terms, OECD countries and regions must pay particular attention to productivity in the economy. On Gotland, despite the reduction in the working-age population, productivity has been contributing actively to regional and national GDP growth (Figure 1.14). There is potential to raise it further.

In the national context, Gotland observes the lowest level of labour productivity as a region (Figure 1.13) and, although the gaps with respect to the national level have also increased, from 23% below the national average in 2000 to 30% in 2018, when compared to peer regions, productivity trends on Gotland have been competitive (Figure 1.14).<sup>10</sup>

- In 2001, labour productivity on Gotland was below the average productivity of benchmark European island regions and OECD remote regions. Fifteen years later, it had increased to above the average productivity of both benchmark regions.
- Productivity growth since 2009 on Gotland has been above (0.8%) the growth rate of peer European island regions (-1.28%) and peer remote regions (0.33%).

Raising productivity on Gotland will be critical to sustaining high living standards and growth over the medium and long terms. Productivity in regions is driven by a wide range of factors including agglomeration effects, innovation and investment intensity, economic specialisation, skills of the labour force and quality of infrastructures. In this respect, Gotland has the potential to raise productivity by: maximising the potential agglomeration benefits of its capital city Visby; fostering innovation across the entire ecosystem in the region attracting skilled labour by further improving its attractiveness (e.g. in terms of quality of life and services in areas such as health, digital access, family planning, housing, etc.); addressing challenges of seasonality in its labour market; and adding more value to existing areas of economic specialisation.

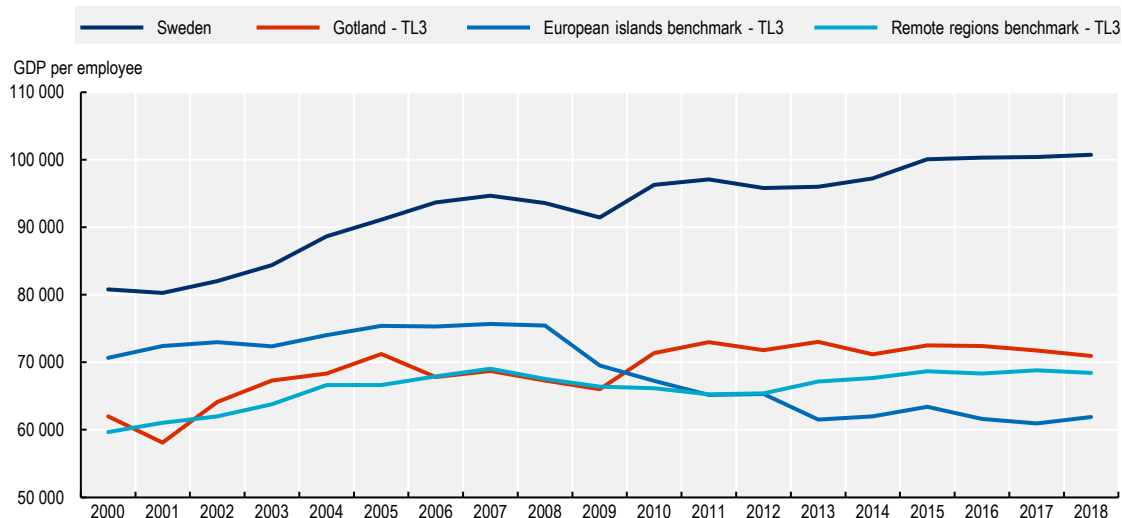
**Figure 1.13. Labour productivity varies significantly across regions, 2018**



Note: GRDP: Gross regional domestic product in SEK.

Source: OECD (2021<sup>[22]</sup>), *OECD Economic Surveys: Sweden 2021*, <https://dx.doi.org/10.1787/f61d0a54-en>;

**Figure 1.14. Productivity on Gotland, in Sweden and TL3 benchmark, 2000-18**



Note: Measured as USD, constant PPP, current prices base year 2015, per employee.

Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

The next section examines Gotland's economic specialisation followed by the performance of its labour market.

*Despite its insularity, Gotland has a relatively diversified economy*

Gotland's economy in terms of size is relatively small across national and OECD standards. With a total population of about 60 900 inhabitants in the region and the capital city Visby hosting approximately 26 000 inhabitants in 2021, its size of internal markets is relatively small, limiting the potential for

reaping agglomeration benefits when considering that OECD functional urban areas start at around 50 000 inhabitants.

This implies that niche markets and tradeable activities are key to raising productivity in the region:

- Tradeable activities typically include manufacturing, some service sectors, resource extraction and utilities. Tradeable sectors are those goods and services that are exported to other regions or countries either as final or intermediate goods. Productivity in tradeable activities tends to be larger than in non-tradeable activities across OECD countries and regions. Therefore, they are key activities for remote regions such as Gotland to raise productivity.
- Another source of potential productivity can be derived from niche markets. These are differentiated products and markets in which Gotland can specialise and has a competitive advantage. Enhancing innovation in the region can add more value to these activities and hence raise productivity.

Gotland's economy is highly dependent on the public sector, which contributes to 26% of GVA, and trade and transport (18.2%). The remaining sectors do not each produce more than 10% of GVA, led by industry (9.9%), real estate (7.9%), construction (7.4%), general services (7.4%), manufacturing (6.8%), and agriculture forestry and fishing (6.1%), (Figures 1.15 and 1.17). Amongst these, tradeable activities represent around one-quarter of the regional economy, led by manufacturing and processing of primary sector activities (OECD.stat, 2021<sup>[14]</sup>):

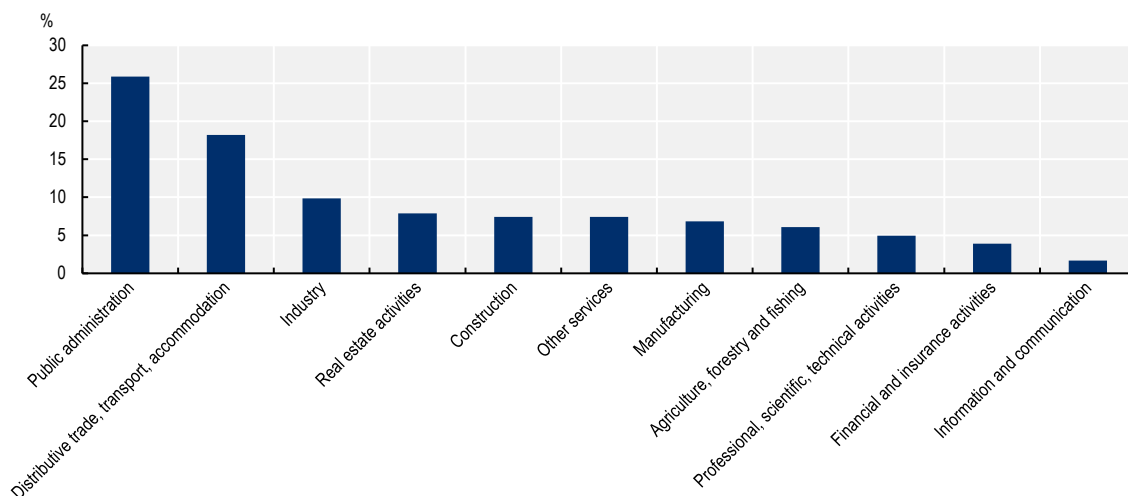
- **Food production and processing** play an important part in the regional economy and are sustained by a constant flow of investments over time. Just under three-quarters of the island's surface is dedicated to agriculture and forestry. About 85-95% of food production and processing activities are tradeable, and exported outside the island. For example, Sweden's largest brand of organic meat *Smak av Gotland* (Taste of Gotland) is included in Gotland's abattoirs portfolio. The abattoir is one of the largest industries on the island (in terms of turnover and workplace) and exports about 98% of its beef and pork production to the mainland (a smaller percentage abroad). (Gotlands Slakteri AB/Svenskt Butikskött, 2021<sup>[23]</sup>) Further, many farms diversify their activities, often also operating in the energy and tourism sectors (Region Gotland, 2017<sup>[19]</sup>). For example, local farm shops had peak years in both 2020 and 2021 (LRF Gotland, 2021<sup>[24]</sup>).
- **Non-metallic mineral products, wood and manufacturing industries** are also key tradeable activities in the island. In particular, the extraction and processing plants for non-metallic mineral products (e.g. cement and limestone) are important contributors to the island's economy. Moreover, their contribution has remained broadly stable over time, including during the COVID-19 pandemic. There are (multinational) mining companies present on Gotland: Cementa, Nordkalk AB and SMA Minerals. The cement production plant in Slite accounts for three-quarters of all cement used in Sweden and also accounts for an important supply chain linked to the production of cement, spread throughout the island (Region Gotland, 2021<sup>[2]</sup>; Trinomics, 2021<sup>[15]</sup>).

Tourism is another important element of Gotland's economy (Trinomics, 2021<sup>[15]</sup>). Tourism on Gotland is concentrated in the period from mid-June to mid-August but efforts are being made to extend the season year-round. During the summer, the population of Gotland more than doubles, from about 60 000 inhabitants to 130 000 in July. As in many islands, seasonal variations mean increased traffic congestion and pollution and higher pressure on infrastructure and services (e.g. water, waste management and public transport). They also limit the possibility for many local businesses to maintain qualified workers all year long.

Up to 6 000 people work in the hospitality industry during the summer. They fall to 2 000 in low season but a large number of people are employed in connected activities such as the food and retail sector, transport, construction, and the cultural and creative industries for example. Tourism turnover on Gotland was quite stable before the COVID-19 pandemic, amounting to about SEK 4 000 million per year in the period

2016-19, compared to SEK 306 000 million in 2019 for Sweden (OECD, 2020<sup>[25]</sup>). As in other OECD countries, tourism was hard hit during the COVID-19 pandemic. On Gotland, before the pandemic, over 2.2 million people visited the island annually reaching more than 1 million overnight stays. This amount was reduced to 1.3 million visitors in 2020 and guest nights dropped to 724 155 guest nights (Table 1.2). The share of foreign tourist guest nights has remained the same in recent years and accounts for 11% of total guest nights. Foreign visitors primarily come from Denmark, Germany and Norway (CAB Gotland, 2021<sup>[26]</sup>).

**Figure 1.15. Share of Gotland's economy by activity, 2017**



Note: The GVA values for “Other services” correspond to 2015 as there is a statistical error in the data from that year onwards.

Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

**Table 1.2. Number of passengers and guest nights, 2017-20**

	2017	2018	2019	2020
Passengers	2 240 131	2 235 885	2 269 138	1 358 034
Guest nights	1 004 876	1 002 751	1 025 521	724 155

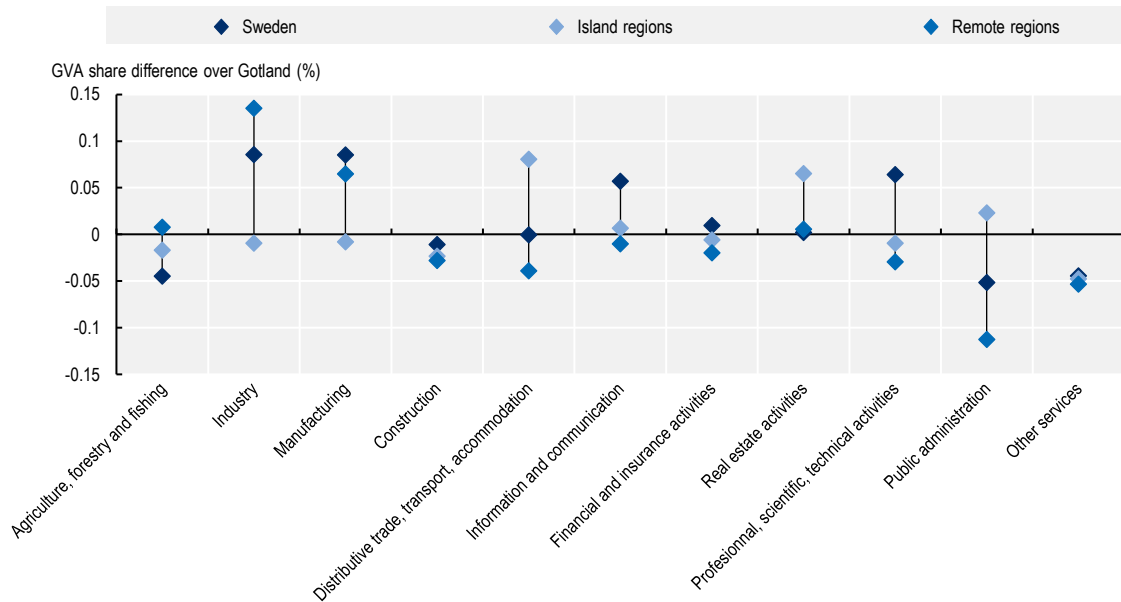
Source: CAB Gotland (2021<sup>[26]</sup>), *Regional Housing Market Analysis Gotland County 2021*, <https://www.lansstyrelsen.se/download/18.1d275504179f614155f3c07/1627887471773/BMA%202021.pdf>.

An analysis of economic specialisation reveals that Gotland is highly specialised with respect to Sweden and peer regions from islands and remote places, in construction and in other services (Figure 1.16):

- When compared to Sweden and as expected, Gotland is more specialised in agriculture, forestry and fishing, public administration and other services, and less specialised in industry, manufacturing, information and communication, financial and insurance activities and professional scientific and technical activities.
- When compared to peer island regions from the EU, Gotland is more specialised in agriculture, forestry and fishing, financial and insurance activities, professional scientific and technical activities, and a bit more specialised in manufacturing and industry. In contrast, Gotland is less specialised in distributive trade, transport, accommodation, information and communication and real estate activities.

- When compared to remote regions, Gotland is less specialised in industry, manufacturing, agriculture, forestry and fishing but more specialised in the remaining sectors.

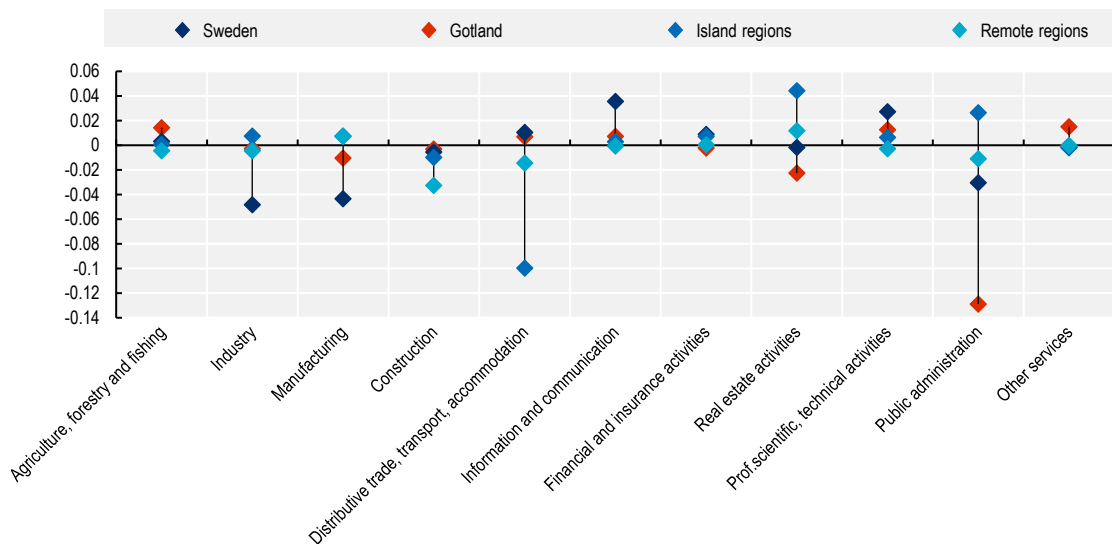
**Figure 1.16. Specialisation on Gotland with respect to Sweden, island and remote regions, 2017**



Note: Above the value of 0 indicates a higher level of specialisation on Gotland with respect to Sweden, island and remote regions. Industry includes the mining sector.

Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

**Figure 1.17. Change in the structure of the economy (GVA change), 2017 compared to 2005**



Note: The GVA values for the category "Other services" correspond to 2015 as there is a statistical error in the data from that year onwards. The calculation is based on the GVA of 2017 over 2005 in USD, constant prices, constant PPP, base year 2015. For a definition of what real estate includes, see [https://unstats.un.org/unsd/publication/seriesm/seriesm\\_4rev4e.pdf](https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf).

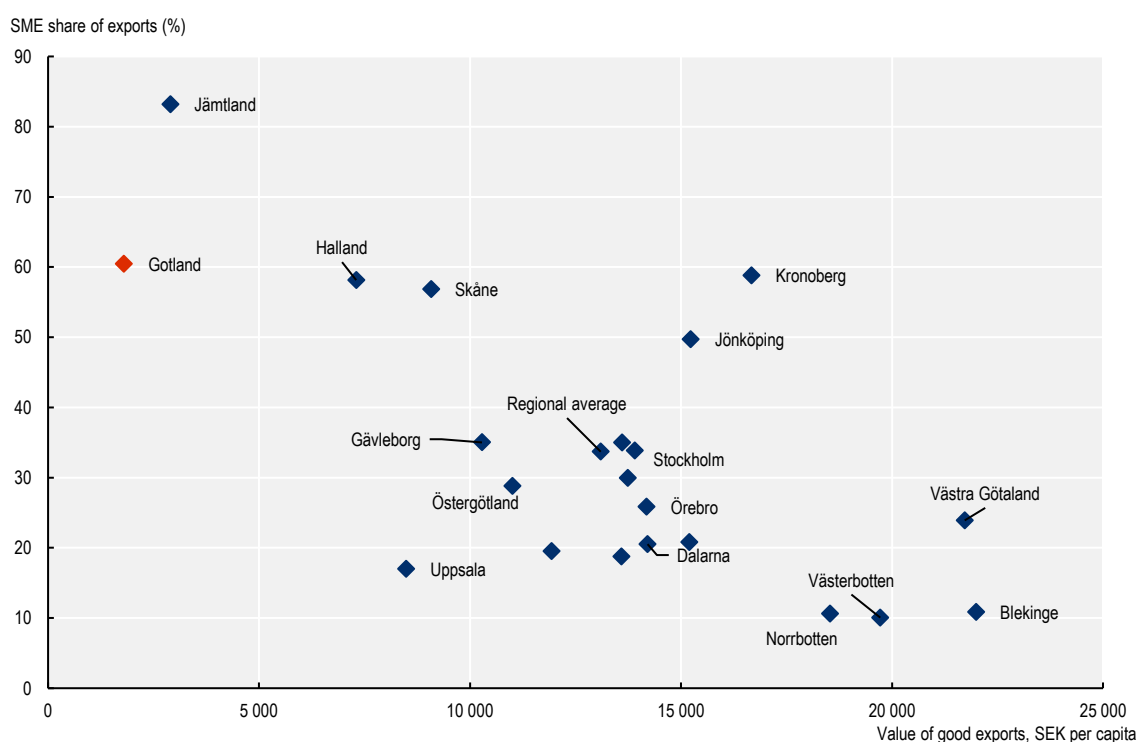
Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

The analysis also reveals that despite the high reliance on the public sector, which contributes to 30% of GVA, this specialisation is similar to peer island economies from the EU. Nevertheless, the benchmark with remote regions reveals they are less specialised in public administration than Gotland.

The trends over the last 15 years reveal consistency in Gotland’s specialisation in agriculture, distributive trade, scientific professions as well as other services have experienced small increases. This stands in contrast to public administration, which experienced a sharp fall. This suggests that despite its high reliance on the public sector, the region is gradually becoming less reliant on public activities.

Gotland’s SME share of national exports (60%) ranks second after Jämtland (83%) in 2018, demonstrating the importance of SMEs to the island. Nevertheless, Gotland’s limited size and export capacity make it, in per capita terms, the Swedish region that exports the least (SEK 17 990 per capita, far from the country’s regional average of SEK 130 960) (Figure 1.18).

**Figure 1.18. Goods export in Swedish regions, 2018**



Note: Goods export value per inhabitant in SEK thousands in 2018 distributed by workplace, divided by county. The proportion of goods export value in different counties in 2018 that comes from SMEs (0–249 employees).

Source: (Tillväxtverket, 2022<sup>[27]</sup>) [Regional export statistics - Swedish Agency for Economic and Regional Growth \(tillvaxtverket.se\)](https://www.tillvaxtverket.se)

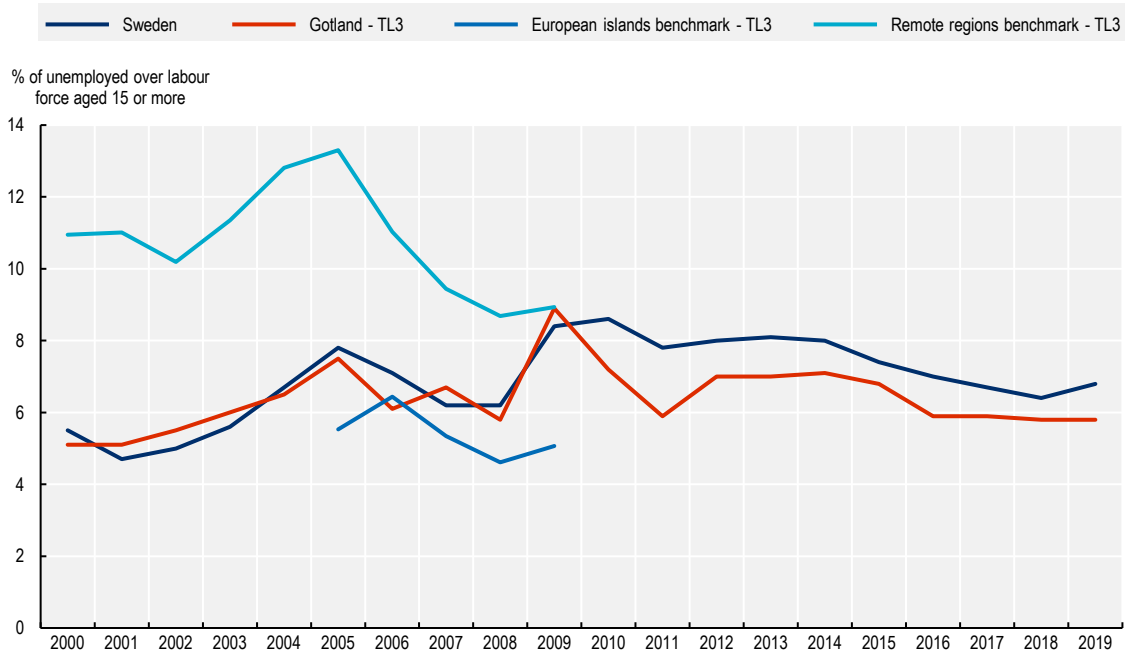
## Labour market trends

### *Unemployment on Gotland is well below the national average*

The labour market on Gotland is defined by small-scale but reasonably diversified sectors. Also, a large part of the labour market is seasonally defined, expanding during the summer months and shrinking in the winter. Unemployment on Gotland has remained stable over the past 15 years, fluctuating between 6-8% and peaked during the 2008 global financial crisis. This rate and its trend over time were in line with the Swedish rate of unemployment. In relation to benchmark regions, before the global financial crisis, Gotland

recorded lower rates compared to peer remote regions, while they were slightly higher compared to peer EU island regions.

**Figure 1.19. Unemployment rate, 2000-19**



Note: Islands and remote regions benchmarks only available up to 2009, Gotland up to 2016. The value for 2019 has been added using unemployed population data from Eurostat data and working-age population from the OECD database.

Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*.

### *The labour market on Gotland is diversified but small and seasonally dependent*

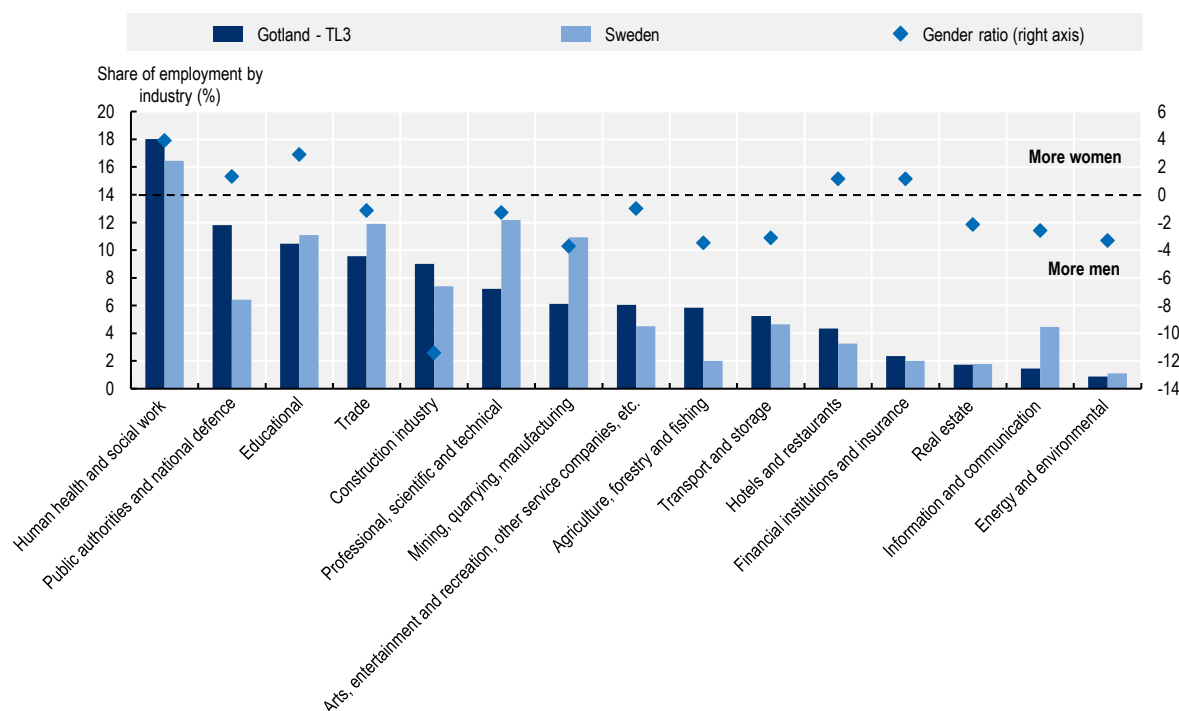
In terms of employment, the employment rate for 15-74 year-olds on Gotland in 2016 (63.3%) was below the national average (67.1%), with the public sector accounting for a large share of employment (Figure 1.20) followed by trade and construction. Agriculture and forestry, non-metallic mineral products and wood and manufacturing industries are smaller but important contributors to overall employment in the region. The largest employers include Region Gotland, the Swedish Social Insurance Agency, Cementa, Payex AB and the Swedish Armed Forces (Region Gotland, 2021<sup>[2]</sup>).

The tourism sector is highly seasonal, creating about 4 000 extra jobs during the summer months (OECD, 2020<sup>[25]</sup>). Managing this seasonality to meet the summer tourism demand represents a policy challenge. Although summer students can pick up part of the job demand, attracting sufficient temporary workers from outside is always a challenge, considering the scarcity of affordable rental housing in summer.

In terms of participating in the labour market, the traditionally male-dominated sectors are also present on Gotland with higher male participation in the construction industry, mining, quarrying and manufacturing, agriculture, forestry and fishing and transport and storage. In line with this, the traditionally female-dominated sectors are also present on Gotland, especially health, social work and education (Figure 1.20). More can be done to support women to move into private sector jobs. In terms of youth aged 18-24, those not in education, employment or training amounted to 3.2% on Gotland against 3.9% nationally, and those participating in active labour market programmes on Gotland were 8.8%, higher than the national average of 6.5% (Region Gotland, 2017<sup>[19]</sup>).



**Figure 1.20. Employment by Industry and gender balance, Gotland and Sweden, 2020**



Note: The gender ratio shows the number of times that there are more workers of one gender over the other. That is, negative values show that there is a higher proportion of male workers over female workers. Positive values imply a higher value of female employees in the sector.

Source: Statistics Sweden (2021<sup>[4]</sup>), "Gotland - minskad arbetslöshet", [https://tillvaxtverket.se/statistik/regional-utveckling/lansuppdelad-statistik/gotland.html?chartCollection=8#svid12\\_a48a52e155169e594d5b3e6](https://tillvaxtverket.se/statistik/regional-utveckling/lansuppdelad-statistik/gotland.html?chartCollection=8#svid12_a48a52e155169e594d5b3e6).

## Enablers for regional well-being

Megatrends like globalisation, population ageing and migration, as well as technological and climate change create challenges but also new opportunities for regions and territories that will be able to adapt and equip themselves adequately. Rural economies are experiencing increased competition from less developed countries as the offshoring of manufacturing jobs to emerging economies with cheaper labour costs has gradually decoupled the production of tradeable goods away from central locations. Furthermore, the shift to a service economy has more largely benefitted cities, while most rural regions are still over-specialised in traditional primary activities (OECD, 2020<sup>[7]</sup>). However, the COVID-19 pandemic has triggered a profound process of rethinking the organisation of production systems, trade and supply chains, as well as the provision of services and the utilisation of new technologies, globally, regionally and locally (OECD, 2020<sup>[7]</sup>).

### ***Innovation and entrepreneurship***

*Gotland is an island of entrepreneurs, yet most stay small and the share of young entrepreneurs and research and development (R&D) expenditure is low*

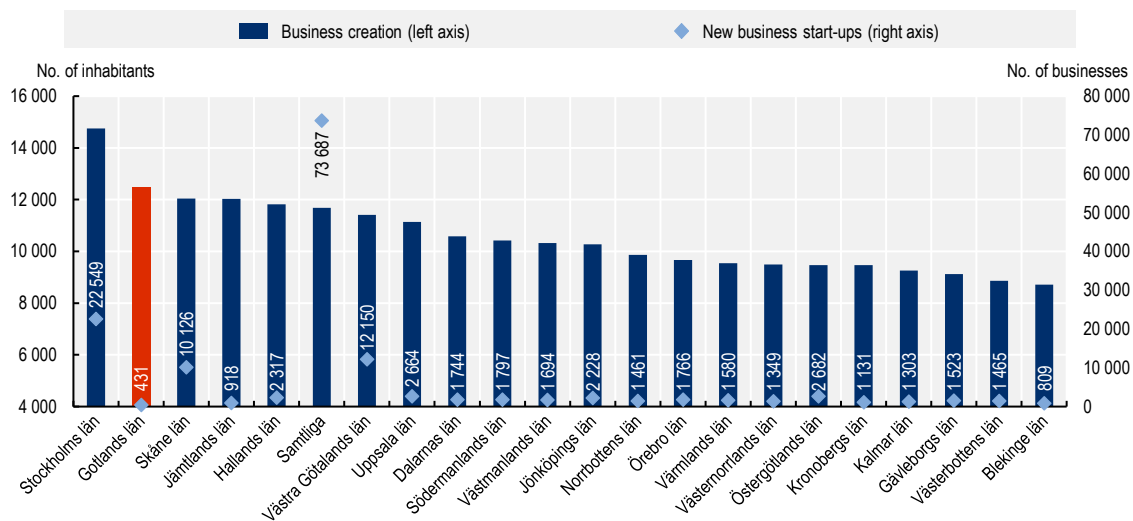
Innovation is today a major driving force for economic growth and competitiveness in the OECD. Rural regions can benefit from a broader perspective of innovation by creating ecosystems that encourage new practices and ideas in a wider range of activities (R&D and investments in technology are important but the concept of innovation is wider) (OECD, 2020<sup>[7]</sup>). Innovation strategies should support a wide range of

collaboration and partnerships among public, private, not-for-profit and educational organisations to foster regional and local specialisation and competitiveness. Regions that host tradeable industries in extractive activities, agriculture and tourism, such as Gotland, should focus their policy on fostering the access of local firms to global value chains, facilitating knowledge sharing to encourage collaborative innovation and providing local businesses and the labour market with the required skills and physical and soft infrastructure (OECD, 2020<sup>[7]</sup>).

Gotland is high in entrepreneurial spirit. Between 2019 and 2020, around 430 businesses were started each year. Adjusted for population, the county has the second-highest share of start-ups (Figure 1.21). Despite that, it has the lowest rate of young start-up founders compared to other countries, with a rate of only 20% under 31 years of age, compared to the Swedish average of 25% in the same age bracket. Furthermore, a larger than average share of start-ups is founded by those over the age of over 50 (31% against 24% nationally).

Most enterprises on Gotland are founded by Swedish citizens (85%), one of the highest in Sweden. Many urban places such as Skåne, Stockholm and Västmanlands have higher numbers of start-ups by foreign-born, likely due to the higher number of migrants. Regarding female entrepreneurship, Gotland compares well to other counties and ranks slightly above the Swedish average of 32%. However, there is ample room for improvement given that only about 33% of start-ups on Gotland were women-led in 2020 (Tillväxtanalys, 2021<sup>[28]</sup>). Similarly, Gotland could do more to profit from young, female, migrant and older entrepreneurs and, more generally, from the unemployed or inactive. Further, with regards to the large share of the elderly population on the island, there are considerable opportunities in drawing on the skills of older people for mentorship and advice in terms of entrepreneurship.

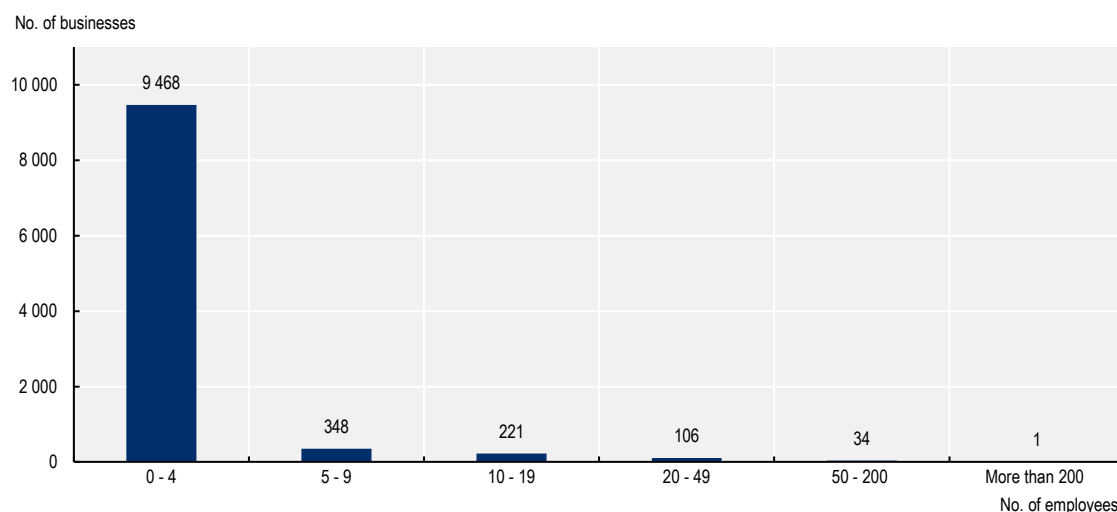
**Figure 1.21. Total business creation and per capita on Gotland and in Swedish regions, 2020**



Note: By gender, the business creation on Gotland has been 33.1% women (183) and 65.6% men (248).

Source: Regionfakta (2021<sup>[29]</sup>), Newly-started companies per 1000 inhabitants

Small and micro businesses make up a large majority of all companies in the municipality of Gotland: 91% (9 468) of all privately owned workplaces (10 178) have 0-4 employees and only 3% have over 50 employees (Figure 1.22). A 2017 survey with entrepreneurs from Gotland indicated that 82% of small business owners demonstrated a willingness to grow with 74% seeing good expansion opportunities. The largest barriers to growth were attributed to the difficulty in finding skilled labour, political uncertainty and the high cost of hiring (Företagarna, 2018<sup>[30]</sup>).

**Figure 1.22. Privately owned workplaces by employees on Gotland, 2022**

Note: The figure encompasses the following variables: workplaces, municipality of Gotland, privately owned.

Source: SCB (2022<sup>[31]</sup>), *Statistikdatabasen [Statistics Database]*, <https://www.statistikdatabasen.scb.se/pxweb/sv/ssd/> (accessed on 12 January 2022).

High levels of R&D expenditure are viewed as a vital enabling factor for innovation. On Gotland, R&D expenditure as a percentage of GDP is extremely limited. While there is no data on private sector expenditure for R&D, public sector expenditure per GDP stands at 0.03% and higher education expenditure at 0%. This is significantly lower than in many other regions and might also be a reason for limited growth in SMEs.

### **Land use and housing**

*Gotland's geographic and economic characteristics make effective land use even more crucial than other territories.*

How land is used affects a wide range of outcomes, from quality of life, such as the length of commute, to the environmental sustainability of urban and rural communities, including the possibility for climate change adaptation and mitigation. Furthermore, the economic importance of land is immense and land use policies play a crucial role in determining land and property prices (OECD, 2017<sup>[32]</sup>). Gotland's limited availability of land makes land use a particularly sensitive policy issue.

In Sweden, municipalities have three main responsibilities related to land use. They are responsible for comprehensive planning and the comprehensive plan, which is mandatory and concerns land use. Second, according to the Act on the Housing Supply Responsibility of Municipalities, each municipality must plan for housing supply in the municipality based on established guidelines. The guidelines aim to create conditions for everyone in the municipality to live in good housing and to promote appropriate housing supply measures. Public housing companies can be a means to implement the measures. Third, they provide the technical infrastructure required to develop the land, such as roads and water and sewage disposal networks. In cases where municipalities own land, this gives them the opportunity to directly choose how they want to use it or if they want to sell it for development.

Municipalities are required to develop a comprehensive plan (CP) and detailed plans. The CP sets the strategic framework for the detailed development plan, which is a legally binding instrument setting out rights and obligations regarding the use of land. CPs cover the entire territory of a municipality and form

the basis of decisions on the use of land and water areas. Since April 2020, the CP functions as a tool for visionary and strategic decisions that co-ordinate superior national and regional goals, programmes and strategies. The plan-making is supervised by the national government through the county administrative boards (CABs). CABs check the compliance of CPs with national guidelines (such as areas of national interest) (OECD, 2017<sup>[32]</sup>). Gotland is in a unique position regarding the CP process. As an island, Gotland has no need to consult with neighbouring jurisdictions to co-ordinate and harmonise their CPs.

This system has been described as imbalanced between actors, top-down and disincentivising active land use planning because local planners are often unclear about which national interests will be judged by the CAB as prevalent or possible in co-existence. This can cause planners to delegate the decision to space-specific authorisation procedures and discourages planning based on potentials and opportunities, often leaving the wider countryside “unplanned” (Solbär, Marcianó and Pettersson, 2019<sup>[33]</sup>). All of Gotland is overlaid by different areas of national interest, including minerals, the airport, energy production, outdoor life, ports, armed forces, natural conservation and cultural protection, and coastal lines. This means that planning for housing space, sewage facility locations, transport routes and development of alternative industries, for instance, almost always encounters areas of national interest. While the designation as areas of national interest does not prevent development per se, it does limit local planning flexibility and often forces decision-making on a case-by-case basis. While activities on these lands that took place prior to designation can continue, it is often very difficult to change land uses in ways that conflict with their designation.

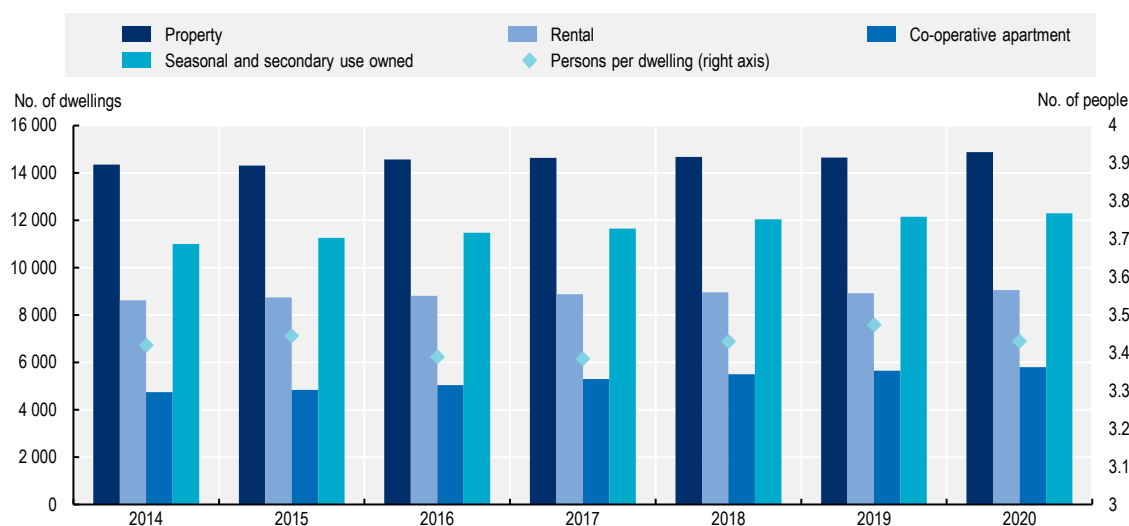
One example of conflicting land use necessities on Gotland is linked to housing, food production and processing. Gotland has the highest area of cultivated and grazing farmland per capita in Sweden. Just under three-quarters of the island’s surface is dedicated to agriculture and forestry. In 2020, about 23% of the farmland was cultivated with certified organic production; 50% of grassland was also organically certified. Furthermore, beef, lamb, pork, poultry and horse farms characterise the landscape of the island (Statistics Sweden, 2021<sup>[34]</sup>). In this framework, Gotland’s land regulations set that any construction built on agricultural land must be allocated exclusively for agricultural use and not, for example, housing or holiday homes (Gotland’s Project Team, 2021<sup>[18]</sup>).

These examples are illustrative of how spatial and land use planning is closely connected to much broader policy and development agendas. Defining how spaces are used determines if objectives such as producing renewable energy, providing affordable housing, producing food or goods and services can be reached and how. Land use is therefore linked to policy objectives on multiple levels and extends across sectoral issues, involving an ever-wider array of actors in the structure of governance (OECD, 2017<sup>[35]</sup>).

*Gotland is experiencing faster price increases in housing than other regions and most new building supplies are holiday homes*

The housing stock on Gotland is largely stable and only increasing slowly. The largest housing increases can be observed in seasonal and secondary homes as well as housing that is owned by co-operatives and rented to shareholders (Figure 1.23). This is in line with the data on building permits: between 2010 and 2020, of the 2 184 building permits granted, 1 277 or 58% were for second or holiday homes. Overall, approximately 40% of the total amount of housing is second homes. This is twice as much as the national average (OECD, 2020<sup>[25]</sup>). The large share of holiday homes directly impacts the housing accessibility of the resident population. Thus, the regions experience an increase in the ratio of persons per dwelling, which stands at 2.4 for Gotland with holiday and second homes, above the OECD average (2.6) and the national average (2.2), but increases to around 3.4 when values for second and holiday homes are excluded (and the housing stock decreases while the population remains the same).

**Figure 1.23. Housing availability by type and per capita on Gotland, 2014-20**



Note: Dwellings per capita calculation excludes values for second or holiday houses.

Source: Statistics Sweden (2021<sup>[4]</sup>), "Gotland - minskad arbetslöshet", [https://tillvaxtverket.se/statistik/regional-utveckling/lansuppdelad-statistik/gotland.html?chartCollection=8#svid12\\_a48a52e155169e594d5b3e6](https://tillvaxtverket.se/statistik/regional-utveckling/lansuppdelad-statistik/gotland.html?chartCollection=8#svid12_a48a52e155169e594d5b3e6).

The lasting popularity of the island with second homeowners has impacted on the housing market and has fuelled the rise in housing prices (for both purchase and rent). In 2020, Gotland was the fourth most expensive county in Sweden. The average yearly rent per square metre was SEK 1 128 on Gotland and SEK 1 120 for the Swedish average. In addition, prices have increased significantly in the past years, leaving the municipality to rank 5<sup>th</sup> among the 290 Swedish municipalities in the country with the highest price increase (CAB Gotland, 2021<sup>[26]</sup>).

Combined with a comparatively low average income, the high housing prices make it difficult even for groups that are generally not considered socio-economically vulnerable to find or afford housing on Gotland. People with little or limited income are even more disadvantaged. Housing affordability can be broadly defined as the ability of households to buy or rent adequate housing, without impairing their ability to meet basic living costs. This also has repercussions on the attractiveness of the island and the ability of the island to attract (or retain) not only much sought-after talent but also other key professionals, e.g. in healthcare, hospitals and schools. Furthermore, the fact that office space on Gotland is the fifth most costly in Sweden often hinders the possibility to hire additional staff, when needed (Gotland's Project Team, 2021<sup>[18]</sup>).

The presence of many holiday homes and the seasonality of occupancy have also led to the creation of a large amount of short-term rental contracts that exclude the summer months. This is because landlords are able to rent apartments to tourists over the summer at a higher cost than during the rest of the year. Consequently, university students, seasonal workers and other low-income groups have no place to live during the summer when the island is occupied by tourists. For example, out of 497 student apartments, 272 (55%) offer 10-month contracts. For university students, this also means they have limited opportunities to land summer jobs or gain work experience on the island, which could lead to future employment and is much needed from a labour market point of view (Gotland's Project Team, 2021<sup>[18]</sup>).<sup>11</sup> In the long run, this development can also endanger social cohesion (for example, creating friction between wealthy people on vacation and people of the lower middle class, who pays high rents and are not always able to find a stable residence).

**Table 1.3. Price change in housing on Gotland, 2020**

	Gotland
Price change in percentage in 1 year	+9
Price change in percentage in 5 years	+44
Price change in percentage in 10 years	+61
Price change in percentage in 20 years	+289

Source: Statistics Sweden (2021<sup>[17]</sup>), "Folkmängd, andel invånare som är 65 år och äldre", [https://tillvaxtverket.se/statistik/regional-utveckling/lansuppdelad-statistik/gotland.html?chartCollection=7#svd12\\_a48a52e155169e594d5b3e6](https://tillvaxtverket.se/statistik/regional-utveckling/lansuppdelad-statistik/gotland.html?chartCollection=7#svd12_a48a52e155169e594d5b3e6).

### ***Accessibility (transport and digital) is of central importance to life on the island***

Accessibility plays a central role in local and regional development because the quality and mix of infrastructure (transport, services and digital) in a community or region can influence the path of economic development and the perceived quality of life of residents. Furthermore, accessibility to a territory defines the cost and availability of goods and services to be transported to and from that territory. As an island, Gotland depends on effective and efficient connectivity to mainland Sweden and beyond. Yet, the high cost of transport of goods and people limits the potential of island businesses to participate in national and international markets.

*Transport infrastructure between Gotland and the national mainland is well developed but comes at a cost, while links to other Baltic neighbours are limited*

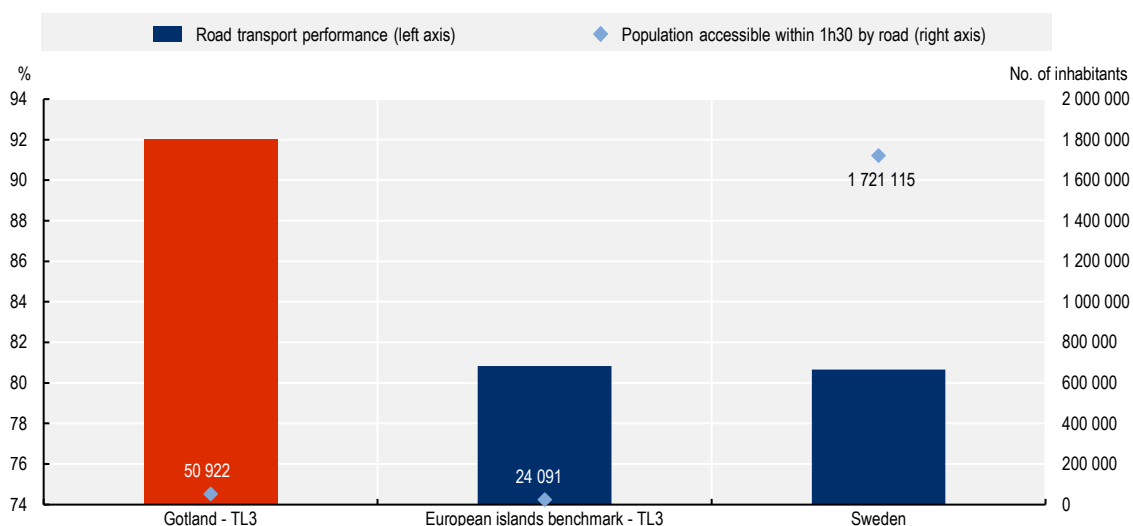
Good transport options are critical for Gotland's residents and businesses. By ferry, it takes about three hours to travel to Gotland. Stockholm can be reached by air in 40 minutes. This allows daily trips to and from the national mainland. Visby Airport has regular air traffic all year round and daily connections to Arlanda, Bromma and Stockholm airports. Before the pandemic, there were also regular connections to Gothenburg and Malmö, among other places. In 2018, 2 100 people commuted from Gotland, approximately half of them to Stockholm County; over 1 200 commuted to Gotland, of which half were from Stockholm County. There is a large seasonal variation throughout the year for transported passengers by both ferry and plane (in summer, passengers are almost ten times greater in number than in winter months) (OECD, 2020<sup>[25]</sup>).

The state is responsible for ferry traffic, which is contracted every ten years by the Swedish Transport Administration (Trafikverket). The ferry service (Destination Gotland) runs between Visby-Nynäshamn (approximately 150 km) and Visby-Oskarshamn (approximately 120 km). The ferries are high-speed vessels and the travel time is just over 3 hours. About 25% of passenger travel goes to the south line (Oskarshamn) and 75% to the northern (Nynäshamn). The transport of goods is evenly distributed on the two lines. The ferries transport both goods and passengers. In 2019, more than 1.8 million passengers travelled with the ferries, of which about a third were Gotland residents. Travelling and transporting goods have continuously increased over the years; however, the COVID-19 pandemic has led to significantly less travel than in previous years. Between January and September 2020, passenger numbers decreased by up to 40% for Gotlanders travelling and 31% for visitors; flights also decreased by 7.4%. 2021 numbers have recovered but are not yet reaching 2019 levels: passenger numbers for Gotlanders especially remain low (Destination Gotland, 2021<sup>[36]</sup>). Overall, transport is largely linked to mainland Sweden, though a new ferry connection just recently opened to Rostock in Germany. If businesses seek to grow (e.g. fostering internationalisation, broadening export markets and increasing qualified labour force) and the island wants to become more attractive to non-Swedish visitors and migrants, new connections to other Baltic countries will be essential.

Ticket prices for the ferry to Gotland vary depending on the season, line and departure time. In peak season (e.g. Easter and summer holidays), prices can be more than double the off-season price for both Gotlanders and visitors. However, Gotland inhabitants benefit from an annually adjusted maximum price, which is set for residents, resident cars and goods, while standard market pricing applies to visitors (OECD, 2020<sup>[25]</sup>). Recently, Destination Gotland has announced a 10% price increase from March 2022 because of raised fuel costs caused by a renewed application of *reduktionsplikt* (or “the duty to reduce”), a national law that aims at reducing gas emissions all over Sweden. This increase may be a critical threshold for all export from the island, especially for the agro-food industry that in parallel is experiencing increased costs for input goods and new peaked energy prices (Gotland's Project Team, 2021<sup>[18]</sup>).

Road transport performance and accessibility on the island are good. Gotland is outperforming both the European islands benchmark as well as the Swedish average (Figure 1.24). Nearly all of Gotland's population can be reached within a 90-minute drive. Hemse, Slite, Visby and the other towns are important for providing services and jobs. As the largest town, Visby has the majority of jobs and also the most commuters. In 2018, it had a positive net commuting rate of about 5 000 people; just over half of working in Visby also lived there, whilst 2 600 people commuted out of Visby. While about 50% of Gotland's population can reach Visby in less than 10 minutes by car, about 11% must travel between 30 and 40 minutes and only 1.4% need to travel more than 60 minutes to reach the town. Buses from Visby serve most places within Gotland (Region Gotland, 2018<sup>[37]</sup>).

**Figure 1.24. Road transport performance and population accessible within a 90-minute drive, 2019**



Note: The Road Transport Performance is calculated using the following ratio:  $\text{road\_acc\_1h5} / \text{popl\_120 km} \times 100$ , where  $\text{road\_acc\_1h5}$  is the number of people who can be reached within a 90-minute drive from a given location and  $\text{popl\_120 km}$  is the number of people living in a 120 km radius of that location.

Source: Eurostat (2020<sup>[37]</sup>), *Road Transport Performance in Europe*, [https://ec.europa.eu/regional\\_policy/en/information/publications/working-papers/2019/road-transport-performance-in-europe](https://ec.europa.eu/regional_policy/en/information/publications/working-papers/2019/road-transport-performance-in-europe) (accessed on 12 October 2021).

Currently, according to the Swedish Road Administration, national roads count an average of 700 vehicles per day on Gotland in comparison to the national average of 1 500 (Gotland's Project Team, 2021<sup>[18]</sup>). While road transport performance is good most of the year, dependence on one mode of transportation creates challenges in the summer months, when the population swells and additional visitor cars populate the island, leading to congestion on roads nearby Visby harbour (in connection to ferry arrivals and departures) and close to scenic spots and beaches. To alleviate the problem, the Hanseatic town of Visby, with its small and narrow streets, is closed to cars during the summer and the biking infrastructure in the island is currently being improved.

Gotland is largely car dependent and has the highest share of passenger cars per 1 000 inhabitants in Sweden (Table 1.4). The island also counts the highest proportion of petrol cars in Sweden (76% compared to the national average of 61%). After industry, transport is the sector on Gotland most dependent on fossil energy. This makes the problem of decarbonising transport on the island one of the main challenges for its transition to a sustainable energy system (Swedish Energy Agency, 2019<sup>[38]</sup>). Overall, there are 35 175 passenger vehicles registered on Gotland, of which 5.5% can be driven on alternative fuels, including electricity (compared to 7.3% in Sweden) (Region Gotland, 2017<sup>[19]</sup>). Rechargeable electric vehicles make up 0.39% of the public vehicle fleet (compared to 0.55% nationally). Gotland has a relatively well-developed charging infrastructure with around 50 destination chargers. Although petrol vehicles make up the bulk of Gotland's public vehicle fleet, the region has made numerous investments to increase the use of renewable energy in transport, including setting a requirement for the operation on biogas for buses, taxis, ambulances and garbage trucks. In 2016, there were 511 gas vehicles registered on Gotland, which can be refuelled with locally produced biogas at four locations: two in Visby, one in Alva and one in Lärbro (Swedish Energy Agency, 2019<sup>[38]</sup>).

**Table 1.4. Passenger cars per 1 000 inhabitants, 2020/21**

Region	Number of cars per 1 000 inhabitants
Gotland County	611
Dalarna County	584
Norrbottn County	570
Jämtland County	569
Värmland County	554
Kalmar County	549
Västernorrland County	547
Blekinge County	540
Halland County	534
Gävleborg County	533
Jönköping County	525
Kronoberg County	515
Västerbotten County	504
Örebro County	496
Västmanland County	495
Södermanland County	493
Skåne County	476
Östergötland County	475
Västra Götaland County	461
Uppsala County	433
Stockholm County	399
<b>Sweden</b>	<b>517</b>

Source: Regionfakta (2021<sup>[39]</sup>), *Personbilar per 1 000 invånare*, <https://www.regionfakta.com/gotlands-lan/infrastruktur/personbilar-per-1000-invanare/>.

*Digitalisation: Broadband connection on Gotland is remarkably good and an advantage for development*

Gotland has a very well-developed fibre optic network throughout the island and occupies a leading position among the regions of the country. In 2020, 88% of the population/households had access to the



fibre optic network (Table 1.5). Almost 92% of the permanent population/households have access to the network and just over 60% of all properties with holiday homes. Also, in terms of connectivity speeds, the island compares extremely well. It not only ranks better than the OECD average for all sub-regional categories but also performs better than the remote regions and island benchmarks across the board. In the villages category, Gotland even outperforms the Swedish average (Figure 1.25). Download speeds are increasingly important because online applications require higher data transmission rates. Low transmission capability and speed severely limit access to content-dense applications and websites. As a result, fast stable Internet access has become a necessity for those wishing to benefit from the full economic potential of the Internet (Ibrahim and Bohlin, 2012<sup>[40]</sup>).

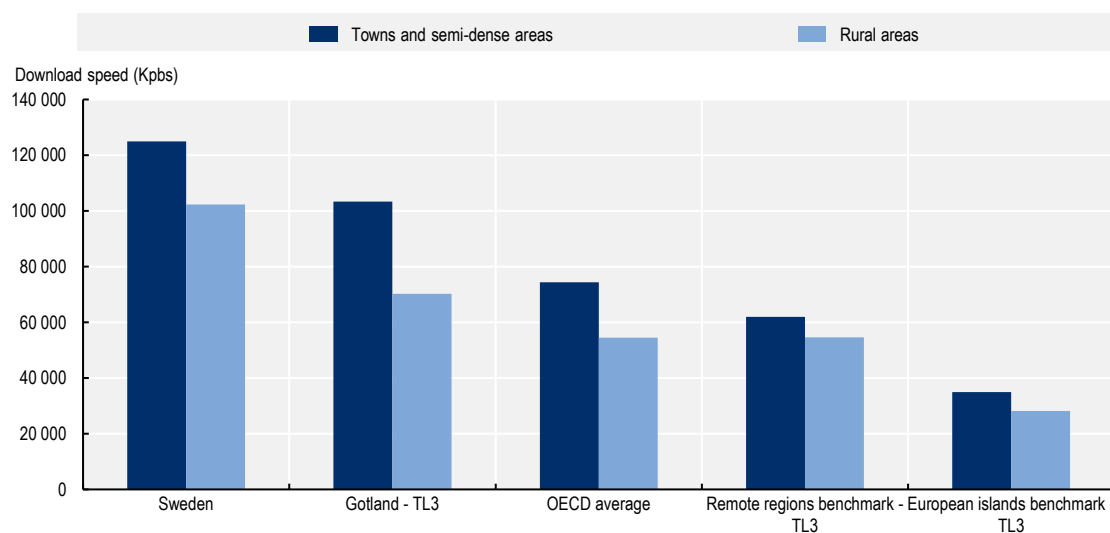
Continuous upgrades to rapidly evolving digital infrastructure will be required to keep places fully connected in the future and ensure Gotland remains at the technological frontier. It is good that it is in the process of expanding its capacity, in terms of both fibre optic and 5G.

**Table 1.5. Broadband coverage – Share of households with fixed broadband in 2020**

Municipality/Region	Number of households	Share of households (%)
Gotland County	29 168	88.0
Sweden	4 972 695	82.6

Source: Regionfakta (n.d.<sup>[41]</sup>), *Bredband via fiber*, <https://www.regionfakta.com/gotlands-lan/infrastruktur/bredband-via-fiber/>.

**Figure 1.25. Download speed connectivity by typology, 2020**



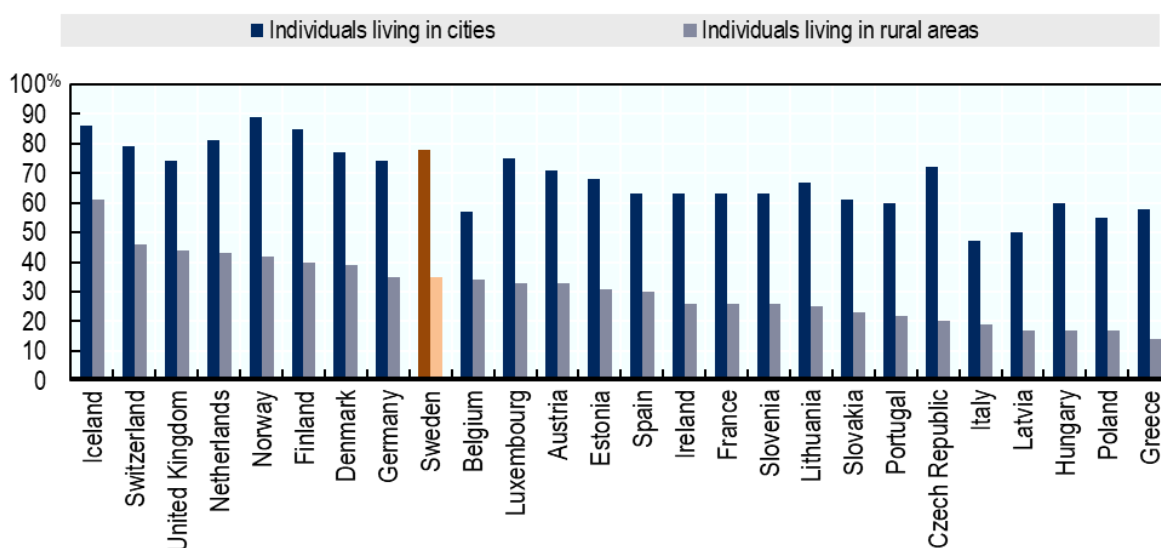
Note: Kilobytes per second (Kbps) of download speed. Territorial typology based on DEGURBA (EC, 2020<sup>[42]</sup>). The degree of urbanisation was designed to create a simple and neutral method of classifying areas that could be applied in every country in the world. It relies primarily on population size and density thresholds applied to a population grid with cells of 1 by 1 km. Towns and semi-dense areas consist of contiguous grid cells with a density of at least 300 inhabitants per km<sup>2</sup> and are at least 3% built up. They must have a total population of at least 5 000 inhabitants. Rural areas are cells that do not belong to a city or a town and semi-dense areas. Most of these have a density below 300 inhabitants per km<sup>2</sup>. Cities have not been included they have a population density that does not apply.

Source: Ookla's Open Data Initiative (2022<sup>[43]</sup>).

Digitalisation and the use of high-quality broadband are good bases for creating new market opportunities for island communities. They can favour increased productivity, economic growth and access to the most important services such as health and education, and are a highly determining factor in terms of

attractiveness because they help to overcome distances and allow for accessibility to services, information and markets (OECD, 2020<sup>[7]</sup>). However, the development of a solid digital infrastructure for an island such as Gotland does not depend solely on the availability of solid fibre optic or 5G networks. The concomitant presence of other complementary factors is equally crucial, such as having the skills and capability to use these digital technologies. While data on the TL3 level on digital skills is not available, countrywide data shows that individuals living in rural areas often have fewer digital skills than their counterparts living in cities. Digital skills are broadly defined as the skills needed to use digital devices, communication applications and networks to access and manage information.

**Figure 1.26. Share of individuals living in rural areas and cities in Europe with basic or above digital skills, 2019**



Note: Not all OECD countries are covered by the data source. For further information on the Eurostat classification of areas by degree of urbanisation, see <https://ec.europa.eu/eurostat/web/degree-of-urbanisation/background>.

Source: OECD (2021<sup>[44]</sup>), *Delivering Quality Education and Health Care to All: Preparing Regions for Demographic Change*, <https://dx.doi.org/10.1787/83025c02-en>; EC (2017<sup>[45]</sup>), *The European Social Survey*, [https://ec.europa.eu/eurostat/cros/content/european-social-survey\\_en](https://ec.europa.eu/eurostat/cros/content/european-social-survey_en).

### ***Education and health: Public services are of high quality on Gotland, which adds to the regional attractiveness but is expensive to maintain***

Public service facilities in isolated and lower-density places often have limited scale and struggle to recruit and retain professionals. These places often also face lower fertility rates, rapid ageing and depopulation, which can, in turn, create a vicious circle through further pressures on already scarce local finances. Ensuring efficient use of public resources and delivering sustainable policy responses in the provision of services has never been more important, especially in those times of the COVID-19 pandemic which has exacerbated many pre-existing challenges (OECD, 2021<sup>[44]</sup>). The primary source of the region of Gotland is tax revenue: the vast majority of it, almost 90%, is used to fund healthcare, elderly care and education services on the island (Region Gotland, 2017<sup>[19]</sup>). Another important source of financing for Gotland derives from the state's municipal equalisation system (Box 1.2), which will be discussed in detail in Chapter 4.

### Box 1.2. Sweden's municipal financial tax equalisation system

In Sweden, municipalities finance their activities mainly through local taxes. However, tax power and costs are often uneven because of demographic or other factors. The equalisation system (*Kommunalekonomiska skatteutjämningssystemet*) has existed since 2005 and forms a large part of the state's transfers to the municipalities. The system consists of five parts: income equalisation, cost equalisation, structural grants, introduction grants and regulatory grants. Income equalisation is by far the largest item in the system and accounts for 70% of the redistribution.

In 2021, the municipal equalisation system distributed approximately SEK 161 billion. Dorotea was the municipality that received the most per inhabitant (SEK 32 873), while Gotland received the largest transfer in absolute terms (SEK 10 914 per inhabitant). In contrast, the largest contributors were Danderyd (with SEK 18 864 per inhabitant) and Stockholm in an absolute terms (SEK 447 per inhabitant).

Source: Ekonomifakta (n.d.<sup>[46]</sup>), Homepage, [www.ekonomifakta.se](http://www.ekonomifakta.se) (accessed on 19 August 2021).

*Despite good offers, educational attainment is below the national average and significant efforts are being made to provide elementary education across the island*

Human capital and skills are critical drivers of regional growth as the productivity of territories often depend on the successful upgrading of low-skill workers and an increase in workers with technical skills. This, however, may be particularly challenging for islands, rural and remote regions that often suffer from isolation, high transport costs and high costs for delivery of education and training services (OECD, 2020<sup>[7]</sup>).

Gotland offers a well-equipped education and skills development system that covers all of the island; however, quality varies and higher education is largely centred in Visby. In rural areas, schools can be very small, with 40 to 100 pupils per school, and often struggle to have enough pupils to keep operating. In March 2021, the regional council took a political decision to keep several rural schools open, despite decreasing student numbers and increasing costs. A key rationale for the decision was the notion that schools are essential for development, especially in the more rural parts of the island, and that equality of services provided should prevail. Schools, however, experience difficulties in finding teachers that are willing to teach in small schools, as they are missing the ability to exchange with colleagues when working in a smaller structure. In the future, sustaining the viability of small schools will not only depend on the number of students but also the availability of teachers. It is forecasted that in the next 10 years, 90% of Gotland's teaching staff will retire (Skolverket, 2022<sup>[47]</sup>). This requires the region to think about ways to replace teachers and attract younger colleagues to take up work – especially in rural communities.

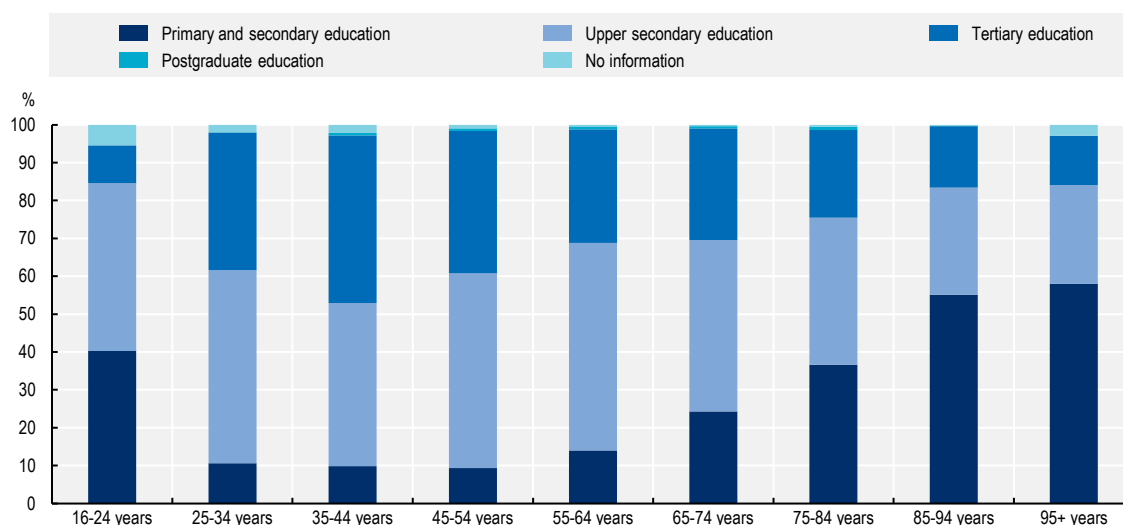
Compulsory schooling ends at Year 9 and is offered in 6 locations around the island: Fårösund, Hemse, Klintehamn, Roma, Slite and Visby. Upper secondary schooling is available in Fårösund, Hemse, Romakloster and Visby.<sup>12</sup> Adult education largely takes place in the Vuxenutbildningen Gotland, which offers introductory and upper secondary level adult education (in both presence and distance learning). It also provides vocational training, guidance and apprenticeships for adults as well as Swedish language courses for migrants (Region Gotland, 2017<sup>[19]</sup>).

Higher education in the form of university education is provided by Uppsala University, Campus Gotland. On Campus Gotland, 20 programmes at undergraduate and graduate levels and 300 courses in the 3 disciplines covering humanities and social sciences, medicine and pharmacy, as well as technology and science are offered. Some special programmes (e.g. for teachers and nurses) are crucial for

supporting the local jobs market and services. Most departments are split between the mainland and Gotland, only the department of game design is entirely based in Visby. Campus Gotland has approximately 2 300 full-time students, of which approximately 1 400 are campus students. Of the campus students, just over 20% are estimated to be international students. Campus Gotland has about 200 employees, of which about 150 are teachers, researchers or professors (CAB Gotland, 2021<sup>[26]</sup>).

Levels of education by age vary on Gotland. Most people 65 years of age and upwards have the highest numbers of people with only compulsory, primary and secondary education, and the lowest share of upper secondary and post-secondary education. This is considering that young people in the age group of 16-24 years have likely not completed their education yet and therefore show high levels of primary and secondary education. Tertiary education attainment is concentrated between 25 and 64 years of age, with 35-44 year-olds having the highest share (almost 50%, see Figure 1.27). Regarding gender only, 43.5% of women and 28.9% of men aged 25-64 have upper secondary education. This is lower than the Swedish average of 49.8% for women and 37.6% for men. The percentage of pupils completing upper secondary school in due time was 66% is also lower than the Swedish average (71.5%) (Region Gotland, 2017<sup>[19]</sup>).

**Figure 1.27. Level of education by age and period on Gotland, 2020**



Note: The percentages have been calculated as a share of each educational level and age segment over the total of all educational levels and all age segments.

Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

The specificities of the island's labour market require the regional government to pay particular attention to the development of policies aimed at strengthening the local workforce, retaining young people (e.g. fostering the attractiveness of the island as a place to work and live all year round) and providing a lifelong learning system to offer the skills appropriate to the needs of the local businesses and production system. In addition, the need to keep young qualified people on the territory requires actions aimed at better integrating youth into the local labour market and solving bottlenecks in housing provision.

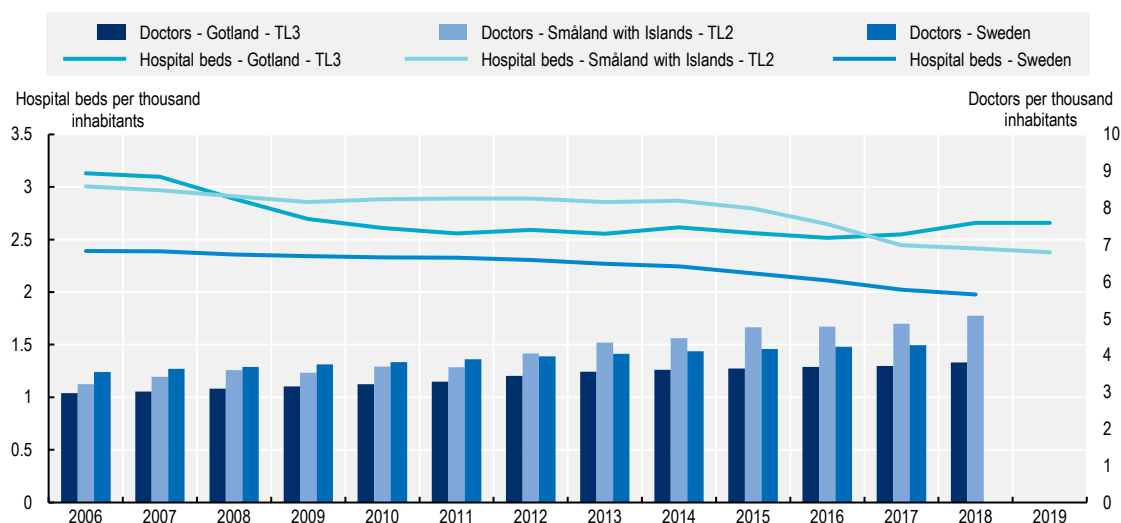
### *Health services have kept pace with Gotland's population growth*

The management of the social and healthcare system on Gotland, an island with a small population, presents some critical issues in terms of resources, organisation and skills to provide hospital and health services at a quality level and costs for the community. This is further complicated first by an ageing population in the region, second by a relevant increase in the population living on the island during tourism

season and weekends. However, Gotland has managed to maintain a high level of access to medical services, considered amongst the best in Sweden in terms of scheduling access to healthcare as measured by the number of medical visits and surgeries (Region Gotland, 2021<sup>[2]</sup>).

The number of doctors per 1 000 inhabitants has been growing over the years, from 2.97 in 2006 to 3.8 in 2018, though below the national value (from 2.4 in 2006 to 1.97 in 2017) (Figure 1.28). In terms of the number of beds, the trend has been relatively positive compared to the national average, as the country's population increase has been accompanied by increase in the number of hospital beds, with a positive ratio for Gotland in this respect, and has recovered in 2019 (2.6 beds per 1 000 inhabitants) to values similar to those of 2009.

**Figure 1.28. Hospital beds and doctors per thousand inhabitants, Gotland, Småland and Sweden, 2006-19**



Source: OECD.stat (2021<sup>[14]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

Healthcare in Sweden is decentralised – responsibility lies with the regional councils and, in some cases, local councils or municipal governments. Operationally, the Region Gotland Department of Health and Medical Care is responsible for all health, medical and social services, including dental care. The department provides care services both at home and in public facilities, providing services around the clock. It had approximately 1 500 employees and a budget of SEK 1.8 billion in 2021. The Stockholm Region and Region Gotland together form a so-called “healthcare region”. This entails joint responsibilities to plan and deliver healthcare on equal terms to all residents within the “healthcare region”. Karolinska University Hospital in Stockholm supports the health service on the island as regards the provision of medical care, including specialised care, and the development of the skills of medical and health personnel.

Gotland's main city, Visby, counts one hospital and four clinics. Other clinics are located in Hemse in the southern part of the island, Slite in the northern part and Klintehamn (south of Visby). Four other villages have so-called "health points", which offer basic medical treatments and tests. The National Public Dental Service provides dental care on Gotland in clinics located in Visby and three other locations. Visby Hospital also hosts an oral and maxillofacial surgery centre, which serves as a regional dental competency centre on the island (Region Gotland, 2017<sup>[19]</sup>).

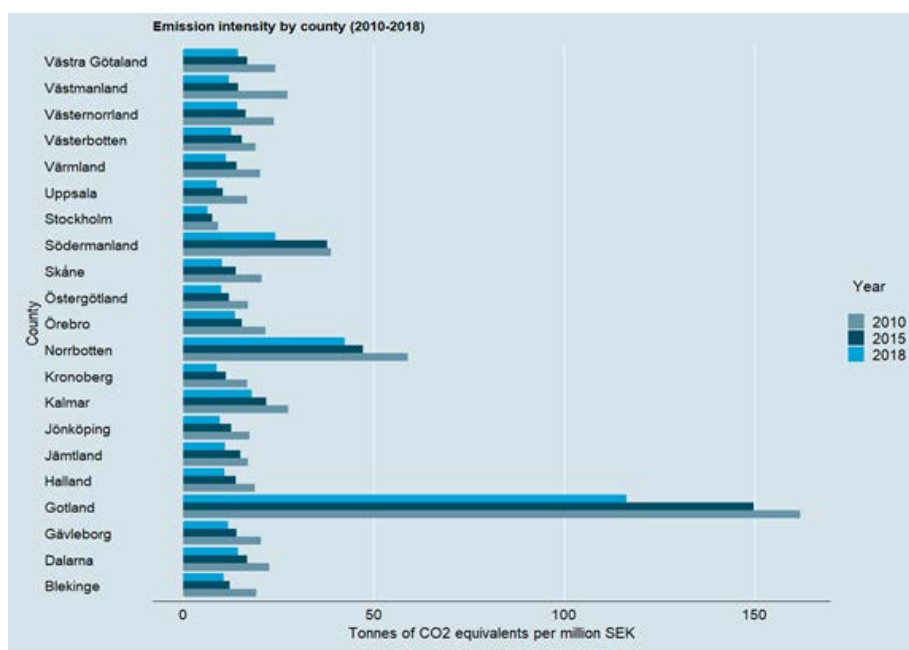
## Environment

*High greenhouse gas (GHG) emissions and the lack of freshwater are a significant challenge for Gotland: With the right policies in place, the island can turn the environmental and energy transition to its benefit and become a role model for other regions*

Environmental quality such as clean air and water, biodiversity and the availability of green spaces are essential components of people's well-being (OECD, 2020<sup>[7]</sup>). Rural regions are pivotal in the transition to a net-zero-emission economy and in building resilience to climate change because of their natural endowments. Rural territories are needed for food and renewable energy production from wind, water and biomass. They are also where we find natural beauty, biodiversity and ecosystem services that produce clean air, detoxify waste, clear water, sequester carbon and allow for recreation. Yet, the specialisation of rural areas in resource-based industries also makes rural regions a contributor to climate change and demands consequent transition management (OECD, 2021<sup>[48]</sup>).

Gotland is a perfect example of this. While the island has great natural values, including biological diversity and a vital ecosystem to safeguard, it is also the most emission-intensive county in all of Sweden and experiences environmental degradation. About 6% of Gotland's territory is protected with national parks, nature reserves and dedicated projects which also include lakes, beaches and sea areas (Salvorev-Kopparstenarna) (Region Gotland, 2017<sup>[19]</sup>). At the same time, the island contributes to almost 5% of total GHG emissions at the national level as its economy is based on high-emitting sectors including mining, manufacturing, agriculture, dairy and beef cattle. Despite decreasing emissions in past years, Gotland's emission still exceeds all other regions (Figure 1.29) in tonnes per SEK million. This is largely due to being host to the third biggest industrial emitting plant in Sweden. The cement factory in Slite emits 1 536 480 tonnes of CO<sub>2</sub> per year (2019). While industry accounts for 29% of climate-affecting emissions in Sweden overall, on Gotland, these rise to 80%, and even 90% in the case of direct GHG emissions (Trinomics, 2021<sup>[15]</sup>). In comparison to our benchmark islands and remote regions, Gotland has the highest emissions, yet the difference between islands is lower than in mainland regions (Table 1.6).

**Figure 1.29. Emission intensity of Swedish counties, 2018**



Source: Trinomics (2021<sup>[15]</sup>), "Support to the preparation of territorial just transition plans in Sweden".

**Table 1.6. CO<sub>2</sub> emissions per capita in Sweden, Gotland and the TL3 benchmarks, 2018**

Regions	CO <sub>2</sub> (tonnes per inhabitant)
Sweden	7
Gotland - TL3	18
Islands benchmark - TL3	13
Remote regions benchmark - TL3	9

Source: OECD.stat (2021<sub>[14]</sub>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

Reducing emissions from cement and limestone industry production is key for the islands to achieve their goal of reaching climate neutrality by 2040. In economic terms, the industry for non-metallic mineral products is important for rural Gotland, (especially in the more northern parts of the island) because it provides non-seasonal, high-skilled jobs (e.g. 398 workers were employed in this sector in 2018, corresponding to 3.2% of total employment in the island) (Trinomics, 2021<sub>[15]</sub>).<sup>13</sup> Closure of the cement plant would have a very significant impact on Gotland's economy, causing job loss in the main plant and SMEs serving the sector. If, however, the local cement plant's plans to develop the world's first carbon-neutral cement plant on Gotland, through a carbon capture process, is launched in 2030, this will likely not lead to any job losses in the region but rather provide the potential for more sustainable growth. Along with three other Swedish regions, Gotland is identified as a beneficiary of the EU Just Transition Fund. As this development goes forward, it is important for the island that the local innovation and business ecosystem benefit from the transition made in the cement and limestone production, for instance, through building up research capacity and collaborating with the local university, start-ups and SMEs.

Overall, the island is well positioned for the transition to zero-carbon and a greener economy as it has the potential for local production of renewable electricity from solar and wind energy, as well as resources for biofuels. Biofuels already form the basis for heating the island with over 500 gigawatt hours (GWh) per year. Biogas, used by both industry and transport, is developing positively and production is increasing in the region. Furthermore, wind energy is able to produce around 500 GWh annually and meet up to 50% of the island's present annual electricity consumption (around 980 GWh). One of the three priorities of Gotland's smart specialisation strategy<sup>14</sup> adopted in 2021 is to "Accelerate the business community's energy transition, be a pioneer in adapting technology and implement it in the Gotlandic business community, lead the development in the mineral industry towards climate-neutral cement" (Region Gotland, 2021<sub>[21]</sub>). If Gotland successfully demonstrates it can manage the green transition and reduce its emissions, it could become a role model for other regions and contribute to reinforcing local identity and a sense of ownership among Gotlanders.

Higher consumer demand for sustainable products and services as well as appropriate legislation are facilitating the environmental and energy transition on the island. Yet, access to the right competencies to implement change is scarce. Plans to increase energy efficiency, electrify industries, increase the use of biogas and develop options for carbon capture and storage, require skills and competencies that are not easy to find on Gotland. Especially, smaller companies may face challenges in hiring staff with the right competencies in order to remain innovative and implement technological changes (Trinomics, 2021<sub>[15]</sub>).

In addition to the target of reducing emissions, a second axis of environmental action for the regional government is water. In recent years, the island of Gotland has experienced a severe water crisis. Water shortage is now almost permanent and affects persons, businesses, plants and animals, and threatens biodiversity. Water is a crucial element for the development of the island, as it is used in the processing of cement as well as in the agricultural and food industry but also tourism. As in many islands, Gotland has a problem of scarcity and supply of water. The region is highly dependent on underground aquifers but access is sensitive and vulnerable to pollution (Region Gotland, 2021<sub>[21]</sub>).

Given the problem of water persisting over the years, the regional government has launched numerous successful initiatives targeting industry and citizens to save water – in 2016, the island’s water consumption was reduced by 20% – as well as to produce it from the sea. The first brackish water treatment plant, inaugurated in 2016, can produce up to 800 m<sup>3</sup> of drinking water per day (Region Gotland, 2017<sup>[19]</sup>). A second larger plant with a capacity of up to 5 000 m<sup>3</sup> per day, was put into operation in 2019.

Region Gotland is also participating in NexGen (Nextgenwater, 2021<sup>[49]</sup>), a project developed within the EU Horizon 2020 programme, which intends to assess and design circular economy solutions and systems around resource use in the water sector. The project, which started in 2018 and will end in 2022, sees the participation of several EU regions. The challenge on Gotland is to collect and store water to ensure an adequate supply during the summer months. A testbed installation to explore means and ways for water retention was set up in Storsudret, in the south of Gotland, with additional financial support (about EUR 3.5 million) from the Swedish Innovation Agency. Key innovations and actions tested include: i) rainwater harvesting using automatic floodgates to replenish aquifers and monitoring of aquifer levels; ii) decentralised membrane treatment of raw wastewater for reuse to reduce volumes treated at the central wastewater treatment plant; and iii) climate-neutral desalination powered by solar energy to offset the carbon footprint (Nextgenwater, 2021<sup>[49]</sup>).

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## Notes

<sup>1</sup> The word “migrant” functions as an umbrella term used to describe people that move to another country with the intention of staying for a significant period of time (OECD, 2016<sup>[51]</sup>; 2018<sup>[52]</sup>). Migration refers to all movements of people into (immigration) or out (emigration) of a specific country or countries. Migrant populations are defined on the grounds of place of birth (foreign-born) or citizenship (foreigners). In addition, it can also refer to people who migrate within a country, for instance between regions or cities. This is also the case for this report.

<sup>2</sup> Gotland is, however, one of the biggest municipalities. The average size of Swedish municipalities is 16 000 inhabitants.

<sup>3</sup> Metals (e.g. iron and copper) predominate in the north of Sweden and aggregates in the south in terms of value. On the island of Gotland, industrial limestone production is the most important in economic terms, being worth just under SEK 2 billion (SGU, 2018<sub>[3]</sub>). The SGU is the government agency responsible for issues relating to bedrock, soil and groundwater in Sweden. Its mission includes producing annual statistics on the quantity of metals, minerals and aggregate produced in Sweden.

<sup>4</sup> Eurostat defines islands as territories having with a minimum surface of 1 km<sup>2</sup>, which are located at a minimum distance of 1 km between the island and the mainland of 1 km, with a resident population of more than 50 inhabitants and no fixed physical link with the mainland (Eurostat, 2018<sub>[50]</sub>).

<sup>5</sup> See for example: Armstrong, H.W. and R. Read (2004), “Small states and island states: Implications of size, location and isolation for prosperity”, in J. Poot (ed.), *On the Edge of the Global Economy*, Edward Elgar, Cheltenham, pp. 191-223; Baldacchino, G. (2007), “Introducing a world of islands”, in *A World of Islands*, Agenda Academic/University of Prince Edward Island, Canada, pp. 1-29; Carbone, G. (2018), *Expert Analysis on Geographical Specificities – Mountains, Islands and Sparsely Populated Areas – Cohesion Policy 2014-2020*, DG Regional and Urban Policy, European Commission; Deidda, M. (2014), “Insularity and economic development: A survey”, *Working Papers CRENoS*, Vol. 14/07; ESPON (2019), *Bridges, Balanced Regional Development in areas with Geographic Specificities*; EC (2019), *Europe’s Jewels – Mountains, Islands, Sparsely Populated Areas*, European Commission.

<sup>6</sup> Sweden has four fundamental laws which together make up the Constitution: the Instrument of Government, the Act of Succession, the Freedom of the Press Act and the Fundamental Law on Freedom of Expression.

<sup>7</sup> The parishes are divisions of the Church of Sweden that are also used in the population register.

<sup>8</sup> Ibid.

<sup>9</sup> It should be noted that this is a national trend that creates competition between Swedish regions to attract labour force (Gotland’s Project Team, 2021<sub>[18]</sub>).

<sup>10</sup> Labour productivity measures the gross regional product (GRP) over the total employees and includes all activities. For more information on methods and calculations, see also OECD (2021<sub>[22]</sub>).

<sup>11</sup> According to a survey conducted in 2018 by the University of Uppsala Campus Visby, Gotland, 63% of the students surveyed would have considered staying on Gotland after training if they had had attractive housing opportunities. The current 10/12-month student housing rental system hinders social and economic integration opportunities and pushes younger and more qualified individuals and families to relocate away from Gotland (Gotland’s Project Team, 2021<sub>[18]</sub>).

<sup>12</sup> The Gotland Grönt Centrum in Romakloster is specialised in agriculture and nature management, and has post-secondary education classes in, for example, agro-technology, horse management, animal health and gardening. Fårösund and Hemse are folk high schools: these schools have no grades, no rigid curriculum and no examinations.

<sup>13</sup> See also: Statistics Sweden (2021), *Local Kind of Activity Unit – Regional Basic Data According to Structural Business Statistics by Region, Industrial Classification NACE Rev. 2, Observations and Year (Table RegionalBasf07)*.

<sup>14</sup> The 3 priorities of Gotland's regional smart specialisation strategy adopted in 2021 are: i) accelerate the business community's energy transition, be a pioneer in adapting technology and implement it in the Gotland business community, lead the development in the mineral industry towards climate-neutral cement; ii) strengthen product, process and brand development through innovation and through investments in expertise in the agro and food sector in order to attain smarter growth and enhanced access to markets; and iii) strengthen destination development and experiences in the hospitality industry through innovation and internationalisation around Gotland's authentic values (Gotland's Project Team, 2021<sup>[18]</sup>).



## 2 Infrastructure and accessibility

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This chapter assesses Gotland’s infrastructure and provides recommendations on infrastructure investments to support the regional development of the island. The quality of infrastructure is particularly relevant to islands due to their separation from the mainland, which makes sharing investments more difficult and weakens connectivity. Gotland is further challenged in developing infrastructure because it is also a rural region with a low-density and dispersed population. Despite these impediments, Gotland has quality infrastructure (transportation, energy, social and digital) that has enabled high well-being standards. Recent significant investments in infrastructure (digital, ports, net-zero transportation, etc.) and the regional development strategy (Our Gotland 2040) have set the island up for future progress. Going forward, Gotland will need to adapt its infrastructure to its changing development prospects, including an increased need for renewable electricity generation, pressure on local water supplies and a shortage of affordable and rental housing.

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## Assessment and recommendations

### Assessment

**As an island, Gotland is highly dependent on infrastructure connections due to its isolation and remoteness from the mainland.** Accessibility and resources provided through transport connections, digital connectivity and energy provision are essential to enhance the well-being of citizens and boost economic activity. Facilitating sustainable and innovative forms of transportation and accessibility can improve the competitiveness of Gotland and will be essential to promoting inclusive growth and cohesion.

**Despite its remoteness, Gotland has a relatively well-functioning infrastructure system that has enabled a strong local economy and high well-being standards but will soon necessitate upgrading and expanding.** The infrastructure assets of Gotland include a recently expanded port to support larger cruise ships, fibre optic broadband throughout the island (88% of households have access to the network), charging stations for electric airplanes and other renewable energy systems (biogas, solar and wind). However, some of Gotland's infrastructures will soon be incapable of providing an appropriate level of service. In some cases, this is due to infrastructure reaching the end of its useful life, such as the energy cable; in others, it is due to technological changes and the increasing impacts of climate change. Updating and expanding infrastructure will be required if Gotland is to position itself for new opportunities.

**Peak demand for infrastructure on Gotland occurs in the summer months, resulting in some infrastructure having excess capacity for a significant portion of each year.** This results in relatively high unit costs for water, sanitation and other forms of infrastructure when compared to places with more stable demand. As an island, most forms of infrastructure on Gotland are designed to only serve Gotland, leading to potential reductions in economies of scale and network effects, including a lower ability to share and access infrastructure of neighbouring regions. With current trends of population growth (attracting new residents and tourists) and an increased presence of the military, there is pressure to further expand infrastructure to meet new demands.

**Three key externally driven circumstances condition Gotland's future development path and the types of infrastructure it will need.** The first is whether the local cement plant continues to operate, which depends on a currently pending environmental permit and will play a significant role in future energy needs and infrastructure development. The second is the increasing impact of climate change and impacts on water supply. The third is the recent return of the military to the island and the increasingly tense security situation in the Baltic Sea, following the large-scale aggression of Russia against Ukraine. While these developments are largely outside the region's power, the region can do more to strategically prepare for the consequences of alternative scenarios.

**Overall, the most crucial infrastructure challenges are:**

- Introducing a new, stable primary source of electricity to replace the current subsea cable from the mainland – the main infrastructure supplying electricity on Gotland - that is now nearing the end of its expected life. For renewable energy to take on a larger role in the island's electricity supply, it needs to overcome its intermittent nature and limited or contested locations for deployment. Replacing the existing cable will likely be vital for the local economy to retain its current degree of diversification and increased demand needed for industrial processes. Currently, the region does not seem to be strategically and coherently prepared to face the consequences of alternative scenarios to the energy cable. Rather, it is working on several individual projects simultaneously.



- Overcoming water shortages limiting (economic) development due to the strict regulations required for building new houses and the start-up of new businesses that consume water. Climate change, increasing demand for water and the European Union (EU) water directive put pressure to undertake major new water infrastructure investments. These investments are largely a regional responsibility but different technical solutions will likely be required on different parts of the island because conditions vary significantly.
- Developing an adequate supply of affordable housing options. Seasonal homes dominate new housing (between 2010 and 2020, 58% of building permits were for second or holiday homes) since they are the most profitable form of new construction. The share of moderate-income housing, particularly rental housing, is not on par with population increase, causing prices to rise (the municipality of Gotland ranks 5<sup>th</sup> highest among all 290 Swedish municipalities in terms of price increases since 2020). This makes it hard for lower-income householders or young people to find an affordable place to live all year round. The lack of accommodation is also putting pressure on regional attractiveness, seasonal industries and university students.

**At the local level, small community development organisations play an essential role in developing local infrastructure and providing for certain needs.** Some of these local development companies are taking up roles to provide services (i.e. economic development, housing and leisure services) that are typically provided by the regional or municipal government. These local efforts largely rely on voluntary work. In the future, many of these local initiatives will face succession challenges as the leadership age is increasing and communities get smaller. Securing future infrastructure needs in rural communities also means securing the viability of these initiatives and their access to resources.

### Recommendations

Gotland should:

- **Adopt a more visionary and foresight-oriented approach to exploring the consequences of different scenarios for decisions outside the control of the regional authorities**, such as the fate of the local cement plant, the provision of a new submarine cable to supply electricity and increased military presence, which are largely national. To do this, the island should anticipate the consequences of these various decisions on the island's future economic development path and determine regional responses. For instance, if a new energy cable is not provided, then a larger-scale new investment in renewable energy including backup and storage systems will be required. A scenario-building process could help the region to further explore elements of change and advance on needed preparations ahead of time and make sure they are linked to its regional economic development objectives. As infrastructure needs increase because of national interests, Region Gotland should partner with the national government to ensure that any new infrastructure built to meet national needs also meets the island's wider needs; the financial burdens of this should be shared.
- **Better align infrastructure planning and investment decisions to regional development priorities, including in Our Gotland 2040.** Infrastructure planning and investment prioritisation should respond to local economic and social development needs. Our Gotland 2040, released in 2021, can be used as a guide to developing priority areas for infrastructure investment that align with local needs. Planned priorities with implications for infrastructure include improving accessibility, being at the forefront of the climate and energy transition and conserving water and the environment. Investments should be determined based on their economic, social and environmental returns.
- **Allow for and support infrastructure solutions specific to local needs across the island, where appropriate, involving local initiatives and seeking synergies with local service providers.** As an island, Gotland can benefit from not having to integrate issues into larger

infrastructure elements, making local choices for water, sanitation and broadband more flexible. More remote communities especially lend themselves to innovative actions directly suited to local needs. The regional government can do more to support local initiatives and make room in its strategic planning for alternative solutions as well as possibilities for peer learning between initiatives.

### **Considerations for future infrastructure investments for Region Gotland**

- *Electricity*
  - Expand renewable energy capacity to help achieve Gotland's objective of a climate-neutral energy supply. The extent of this will be defined by the provision of the submarine cable. This would involve identifying ways to site wind turbines in compliance with EU bird conservation regulations and other considerations. To ensure the greatest regional development benefits, the region should seek further innovation around renewables. For instance, the region could continue to investigate opportunities for green hydrogen or other emerging energy sources in relation to renewable energy development. Establishing community trust and assuring local buy-in will also be crucial.
  - Continue the process of upgrading the electricity distribution grid to accommodate greater use of electricity by households, businesses and transport. The local electricity distribution system is part of the shift away from fossil fuels.
  - Evaluate and update energy roadmap measures that are part of the Energipilot Gotland and align them with Our Gotland 2040, accounting for the latest developments in local energy needs and the current security situation.
- *Water*
  - Continue to closely monitor and plan for climate-induced water stress related to decreased rainfall and possible saltwater intrusion in wells. In the process, the region should continue its efforts to continuously update its water strategy and work on a collaboration with different actors, such as local industry and private individuals.
  - Work with the local agricultural sector to encourage farm management practices that increase water retention and infiltration on crop land. The Green Centre, the local emerging agro-food cluster, could receive support to become a site for demonstration projects and implementation. This could include building irrigation dams, recharging aquifers and making greater use of treated wastewater for irrigation.
- *Transport*
  - Seek out new transport routes to the Baltic region to allow for more tourism and facilitate exports to new markets.
  - Continue exploring opportunities to support the increased adoption and use of sustainable transportation including biking, in line with Our Gotland 2040, and the net-zero objective. This can further advance current sustainable transport proposals, including the proposed new hydrogen ferry and the Smartroad Gotland project. Invest in expanding the existing (electric) bicycle network and provide more flexible, on-demand, public transport options in rural parts of the island. This would support local use and have the potential to become an additional means to attract tourists.
- *Housing*
  - Increase the supply of the housing stock for permanent residential use on the island along with support schemes to address the chronic shortage of rental housing through a policy mix. This could include: zoning additional land for housing and loosening height restrictions; increasing the penalty developers have to pay if they do not follow building permits that

require a certain number of units to be reserved for permanent and/or rental use; and acquiring additional municipal land and leasing it to building developers, reserving a number of units for medium-income/rental use as well as developing additional student housing to meet student needs that can be used by summer workers when classes are not being held.

- *Digital infrastructure*
  - Facilitate upgrading wireless capacity to full 5G across the island and consider using this to become a rural test bed for connected technologies in agriculture such as exploring connected sensors in farm animals or water retention.
  - Promote the island as a remote working hub for people working on the mainland and living on the island but also for firms considering relocating to the island, offering remote working from the mainland. This includes conducting information campaigns and drafting guidelines on how to best deal with remote working, and possibly providing co-working infrastructure and work/vacation packages.

## Introduction

The chapter examines the current portfolio of infrastructure on Gotland and assesses the factors that affect its capacity to meet the needs of the island. Infrastructure is an important enabler of economic development and is critical in affecting the well-being of people. A sound set of infrastructure components can play a critical role in making a region both a more prosperous and satisfying place; conversely, weak infrastructure can limit a region's attractiveness to firms and households. Islands face particular challenges in providing infrastructure because they cannot take advantage of links with neighbouring regions to pool the supply of particular forms of infrastructure; neither can they benefit from scale or network effects due to their physical separation from the mainland.

The chapter is divided into three main parts. The first is an assessment of the main elements of physical infrastructure on Gotland, organised by major type. The second is a general discussion of the role of infrastructure in terms of economic development. This section, while largely conceptual, is provided as a way to clarify the ways investments in specific forms of infrastructure might affect local economies. Discussions of Gotland's development strategy should also take into consideration infrastructure investments to ensure that they fully support development efforts since alternative development strategies each require a different mix of infrastructure. Finally, the third part provides recommendations around potential areas of investment that could enhance economic growth and social well-being on the island.

This organisational structure was chosen because it provides a way to examine how alternative outcomes for key future development challenges can alter infrastructure investments. For example, it is clear that the fate of the local cement plant on Gotland will have large consequences for a significant part of future infrastructure investments. If the cement plant remains in operation with lower emissions, a new submarine cable will have to be built to provide enough electricity to power the new carbon capture technology that will be adopted. If the local cement plant closes, alternative approaches to providing electricity may be viable, given the much lower level of electricity demand that will result. Gotland's ambition to be an exporter of renewable energy also hinges on the existence of a new submarine cable. In addition to electricity, increased military presence on the island will likely offer new economic opportunities but may adversely affect water needs and land use possibilities. At this moment, how the future of these three challenges will evolve is uncertain, which makes it important for regional development strategies to investigate the implications of various combinations of outcomes and to develop plans that incorporate different scenarios. Depending on how the future evolves, Gotland could require a considerably different set of infrastructures.

## **Infrastructure responsibilities and investments**

The set of infrastructure on Gotland is provided in different ways (Table 2.1). What is striking about Gotland is the significant role of civil society, mostly in the form of local development organisations, in providing some forms of infrastructure that are typically the responsibility of local or regional governments, or the private sector in other OECD countries. While it is common for rural civil society to take up roles that are typically the responsibility of the local government or the private sector in urban areas, such as volunteer fire departments or transport services for the elderly, on Gotland and in other parts of Sweden, it also extends to providing water, energy or fibre optic infrastructure.

Gotland receives the bulk of its electricity via an undersea high voltage transmission cable that is operated by the Swedish National Grid Company and has no major generation facilities on the island. On the island, distribution of electricity is managed by a local company. Region Gotland holds only 25% of the shares in the local energy company Gotlands Energi AB (GEAB) and its grid company. Renewable electricity is mainly provided by small private operators, some of them owned by local development companies. The region maintains a small amount of fossil fuel generation capacity as a backup system in case of failure of the main transmission cable from the mainland. In order to increase the power capacity on Gotland, the existing 70 kilovolt (kV) electricity grid on the island is due to be strengthened and in parts upgraded to a higher-voltage (130kV) grid. Smart grid functions and the use of a flexible load market are planned to be part of new grid solutions. In 2020, around 180-megawatt (MW) capacity was installed. According to the local grid company, 235 MW (wind) and 200 MW (solar) are objectives for 2035 and hereafter (Region Gotland, 2021<sup>[11]</sup>).

The Swedish government has commissioned the Swedish Energy Agency to make Gotland a pilot area for Sweden's transition to a sustainable energy system. In the spring of 2019, the Energipilot Gotland roadmap was launched. Gotland therewith became a pilot case for smart and renewable energy systems and was granted additional money for investments. The measures proposed in the plan aim to contribute to increased security of supply, competitiveness and ecological sustainability (Box 2.1).

### **Box 2.1. Gotland as an energy pilot for the Swedish government**

#### **Roadmap of measures to become an energy pilot**

The roadmap was developed in view of Gotland becoming a pilot for energy and climate policy goals set by the Swedish government. These include:

- By 2045 at the latest, Sweden will have no additional greenhouse gas (GHG) emissions.
- By 2040, Sweden will have 100% renewable electricity production.
- By 2030, Sweden will have 50% more efficient energy use compared with 2005, expressed in terms of supplied energy in relation to the gross domestic product (GDP).
- Emissions from domestic transport, excluding domestic flights, must be reduced by at least 70% by 2030 compared to 2010.

To enable Gotland to transition faster than the rest of Sweden, extra investments are required on the island. The measures outlined in the roadmap are to be financed within the framework of the responsible organisation's mandate or in collaboration with other parties, through both private and public financing. In addition, a special Gotland grant of SEK 50 million per year shall be used to finance projects that contribute to the restructuring of the transport sector, small- and medium-sized enterprises (SMEs), housing and buildings and to reduce energy use in households. The roadmap to becoming an energy pilot was developed in collaboration with the county administrative board (CAB) of Gotland, Gotland

Region, the Energy Market Inspectorate, operator of the national grid (Affärsverket Svenska Kraftnät) and the Swedish Armed Forces.

The roadmap toward becoming an energy pilot contains both concrete measures and proposals on how the assignment will be implemented and conducted. Overall, 19 measures are listed covering the areas of:

- Local buy-in and acceptability.
- Flexible and robust electricity systems.
- Climate-smart industry.
- Fossil-free transportation.
- Resource-efficient buildings.
- Agriculture and food industries.
- Security of energy supply and preparedness issues.

Source: Swedish Energy Agency (2019<sup>[2]</sup>), *Energy Pilot Gotland*.

Treated water is supplied by regional government-owned entities, particularly in Visby and other larger settlements. Raw water for these treatment plants is mainly groundwater but reservoirs are also employed. Like in many parts of rural Sweden, a large share of residents (40%) living in small communities or the countryside on Gotland continue to rely upon private wells for their water. The local cement plant operates a large water supply system based on reservoirs for its production process. Farms typically rely on wells for household water and on-farm reservoirs for irrigation and livestock production. In addition, there are examples of civil society distributing treated water to a local community for household consumption. Wastewater is managed through region-owned treatment facilities in most settlements and through septic systems on farms and other isolated homes. In addition, civil society is also playing a role in providing supplemental sewage treatment capacity in some smaller communities that are then used for irrigation purposes.

The total operating budget for water and sewage solutions for 2021 was SEK 275 million, the technical administration (*Teknikförvaltningen*) however only spent SEK 103 million. The difference can be explained by projects being cancelled or postponed due to limited personnel resources within the water department and the project department. Like in many other municipalities, the fact that budgeted money is not spent seems to be a pattern for a number of years now (Region Gotland, 2021<sup>[1]</sup>). Underspending for several years in a row can lead to important upkeep or new installations not being made in time. It would be important for Gotland to look into the consequences of potential underspending.

Region Gotland is responsible for investments in and maintenance of streets and roads of networks in Visby, about 220 km in total, and most of the streets in other urban areas (about 100 additional km of roadway). Funds for investments and maintenance are included in the regional budget. It is also possible to obtain co-financing for the region's investments in measures that improve road safety for example, through state funds in the regional plan for regional transport infrastructure. Yet, most transport infrastructure is provided by the regional government. The Swedish national government is responsible for maintenance and investments in state roads, which are covered in the national infrastructure plan. Gotland has about 1 500 km of state road, operated by the Swedish Transport Administration (Trafikverket). The investments are financed via the regional plan for regional transport infrastructure. Funds for maintenance are included in a national infrastructure plan. Among other things, this plan includes investments in the railway system and the major roads. As Gotland does not have any major roads or railways, none of the region's new investments in this domain are financed through the national plan.

**Table 2.1. Providers of Infrastructure on Gotland**

Type of infrastructure/Providers					National government	Subnational government	Private companies	Local development company/ Civil society	Individuals
Electricity	Generation	Large scale			X				
		Small scale	Renewables	Solar			X	X	X
				Wind			X	X	X
				Biogas		X			
		Fossil	Back-up						
	Transmission				X				
	Distribution					X			
Water	Supply	Wells				X		X	X
		Surface				X			X
		Desalination					X		
	Treatment					X		X	X
	Ferry	Ships			X		X (procured by national government)		
Transport		Ports and harbours				X		X	
		Airport					X (state-owned company)		
		Roads			X (state roads)	X (municipal networks of roads)			X
Fibre optic						X	X		
Wireless						X			

Source: Author's own elaboration based on survey and interviews in 2021.

In terms of planning, all regions produce plans for regional transport infrastructure every four years. This is part of state infrastructure planning. For Gotland, Region Gotland is responsible for establishing and deciding on the county/regional plan. The county plan contains investments in the state infrastructure and funds that go to co-finance traffic investments in the region. Trafikverket is responsible for implementing the plan through annual grants from the government. The planning periods extend over 12 years with ongoing revisions every 4 years. For Gotland, the plan covers SEK 273 million for the entire 2022-33 period (Region Gotland, 2021<sup>[1]</sup>).

The state became involved in ferry traffic to Gotland during the 1970s to secure ferry connections all year round to the island. Trafikverket is responsible for ferry traffic to Gotland. Within its assignment to procure interregional public transport, ferry traffic to Gotland is procured. Procurements are carried out every six to ten years. The current operator is Destination Gotland, which holds the rights from 2017 to 2027. As part of the agreement, the operator receives the revenue from ticket sales, among other things, as well as a fixed compensation per year from the state. Work is currently underway for the next procurement circle starting in 2027. Gotland's Transport Council (Trafikrådet), consisting of representatives from organisations, authorities and associations, has defined how it wants air and ferry traffic to contribute to Gotland's development. It is its understanding that Gotland's position should be central to future procurement decisions of ferry traffic done by the national government. In summary, the regional Transport Council would like the traffic to and from Gotland to be:

- available
- long term
- durable
- good frequency
- fast
- reasonably priced.

Region Gotland owns 15 ports, a number of which consist of smaller leisure ports leased to local associations. The Swedish Maritime Administration (Sjöfartsverket) is responsible for the waterways; Region Gotland is responsible within the port boundary. The ports of Klintehamn and Visby are of national interest (*riksintressen*) and important traffic facilities also from a national perspective. Visby harbour, Klintehamn harbour and Slite harbour are the largest harbours. The port of Visby is the base for state-procured ferry traffic though Gotland lacks a reserve port for ferry traffic. Large parts of goods handling have been moved from Visby to the ports of Klintehamn and Slite but, in addition to the goods from procured traffic, the port of Visby also handles relatively large goods flows in the form of grain and oil, as well as special transport such as concrete elements for construction projects. Investments in the ports are financed by Region Gotland, which in turn charges port fees to those using the ports. Investments in ports can also be partly financed within the national plan for transport infrastructure. Since 2018, there has been a quay facility in Visby for docking cruise ships. The cruise ship quay is built and owned by Region Gotland, which leases it to CMP (Copenhagen Malmö Port) responsible for the operation of the quay for the next 20 years. There might also be a business opportunity around mooring fees for yachts on Gotland. Encouraging people to move their yachts to Gotland by offering lower harbour fees could help to cover the cost of harbour maintenance and benefit the local economy without putting stress on the housing market. People sailing to Gotland or keeping their boat there would spend their money in the island's shops and restaurants and would be able to live/sleep on their yachts. Furthermore, local employment could be generated through the maintenance of the yachts and winter storage.

Visby Airport is operated by a state-owned company, Swedavia AB. The company operates and develops all of Sweden's national basic airport infrastructure. The importance of air traffic for Gotland means that Visby Airport has a strategic role for the region. The airport is also an area of national interest (*riksintresse*), which makes it necessary for the airport to be available 24 hours a day for emergencies, just like the hospital helipad.

While not formally ascribed, many Swedish municipalities view broadband as a utility, where local authorities are responsible for providing a significant proportion of public services and infrastructure. Local governments view municipal fibre optic networks as a basic infrastructure for their communities. Most Swedish municipal networks provide retail “operator-neutral” network infrastructure based on fibre to the building (FTTB) or fibre to the home (FTTH). That is, their business model relies on open networks where they act as physical infrastructure providers offering wholesale access to retailers on a non-discriminatory basis. This has led to a notion of “open” municipal networks, which contrasts with other business models for backbone and backhaul fibre optic provision that rely on completely vertically integrated telecommunication operators present both in wholesale and retail markets (OECD, 2018<sup>[3]</sup>).

Almost a decade ago, Gotland was able to provide the possibility for most homes and businesses to connect to a fibre optic cable network that covers the island. The main backbone to communities was provided by existing private sector operators to each of the 92 parishes on the island but final connections to homes were provided by parish-based community organisations that carried out the digging of trenches and the final connections. As a result, Gotland has both a high rate of direct connectivity via fibre-based broadband but also the potential for an expanded wireless network, since cell towers can easily connect to the fibre optic backbone. However, the combination of low population density and a small number of people, which leads to low rates of return on investments, has impeded private investment in next-generation cell towers.

For the most part, there are three roles different stakeholders take in fibre optic networks in Sweden depending on the layer of broadband infrastructure and services: i) infrastructure provider (e.g. dark fibre); ii) network operator (e.g. manages and owns active network infrastructure, for example, bitstream access); iii) service provider (e.g. Internet or pay-TV service provider).

### ***Funding and financing***

Gotland’s ability to meet its infrastructure needs is linked to the availability of funding and financing. Funding for infrastructure on the island primarily comes from Region Gotland, the national government, the EU and local citizens. Financing for infrastructure can come from private or public sources, including banks, infrastructure operators (e.g. telephone companies), European financing agencies (e.g. European Investment Bank) and municipal financing partnerships (e.g. Kommuninvest).

In 2020, Region Gotland had an annual revenue of SEK 7 279 million. The primary source of income is tax revenue, which accounted for 54% of total revenue, followed by 16% from a national equalisation grant, 8% from other grants, 7% from user charges and fees, and 15% from a mix of sales of business operations, contracts, rents, leases and other sources (Region Gotland, 2020<sup>[4]</sup>)

Total expenditure in Region Gotland was SEK 7 124 million in 2020. The main expenditure items were on personnel (49%) and contracts (18%) (Region Gotland, 2020<sup>[4]</sup>). The total investment budget for 2020 was set at SEK 1 010 million out of a total budget of SEK 5 308 million. A large proportion of annual investment (77%, SEK 774 million) is conducted through the public works committee. The remaining investment in 2020 was forecast to be through the Regional Executive Board (SEK 129 million), the Childcare and Education Committee (SEK 11 million) and the Health and Medical Care Committee (SEK 72 million). These investments cover roads, public transport, education facilities and health facilities.

According to Kommuninvest, Region Gotland had the second-lowest level of investment in Sweden in 2019 at SEK 12 231 per inhabitant, compared to a national average of SEK 18 695 per inhabitant (Kommuninvest, 2020<sup>[5]</sup>). Investment by Region Gotland decreased by 25% between 2018 and 2019. In addition, depreciation and amortisation are significant and were approximately SEK 237 million in 2016, which indicates that a significant proportion of investment is related to upgrading or replacing existing infrastructure.



Total debt in Region Gotland in 2020 was SEK 570 million, with SEK 84 million allocated as long-term debt. The equity/assets ratio in 2020 was 41.9%, which is lower than Region Gotland's target of 45%, indicating that a substantial proportion of assets are financed from external equity. The average equity/assets ratio according to the balance sheet for all Swedish municipalities in 2020 was 43%. For all Swedish regions, the corresponding average equity/assets ratio was 23%. The average equity/assets ratio for both municipalities and regions was 38%. Region Gotland includes the regional assignment and makes up approximately one-third of the business. The conclusion is that Gotland does not differ much from municipalities and is better located compared to regions.

Other major infrastructure investments in Gotland are made by national and European governments. In 2011, for example, the European Regional Development Fund contributed EUR 163 000 to support a EUR 4 million upgrade of Visby Port (EC, 2019<sup>[6]</sup>).

One particular funding and financing challenge for Gotland is that the population is ageing. An ageing population can increase the old-age dependency ratio, potentially resulting in lower tax revenues and increased expenditure on pensions and care for the elderly. This can potentially impact investment by lowering available funding, reducing the ability to access external financing and changing infrastructure needs.

## Major infrastructure challenges for Gotland

Gotland faces several important infrastructure challenges, some of which reflect its island status, while others are related to the small size of the local population and the dominance of the seasonal tourism industry in the economy. Although infrastructure does not generally attract visitors to a location, it can contribute to their satisfaction with a place. Tourists generally expect that they will be able to carry on various aspects of daily life while on holiday unless, of course, they have intentionally chosen a place with limited facilities. While most of these challenges have been recognised for a considerable period of time, an increasingly important factor is climate change, which is both altering average climatic conditions and increasing variability in temperatures and precipitation.

Because the population of the island is much higher in the summer months than in the winter season, some infrastructure has to be sized to meet this peak demand. This leads to excess capacity for a significant portion of each year, and since tourism and seasonal home use are increasing over time, there is pressure to further expand infrastructure to meet the new demands. However, underutilised capacity still has to be paid for and, as a result, the unit costs for water, sanitation and other forms of infrastructure on Gotland are relatively high when compared to places with a more stable seasonal demand. Further, without sufficient increases in capacity, the attractiveness of Gotland might not be able to fulfil its full economic potential.

For regions that have adjoining neighbours, it can sometimes be possible to either construct joint infrastructure projects, such as solid waste disposal sites, or to purchase capacity from another region during periods of increased seasonal demand. Sharing capacity can reduce unit costs if there are scale economies in construction and operation while purchasing capacity from a neighbour to meet short-term peaks in demand can avoid having to construct too much internal capacity for normal demands. Like sparsely populated areas in the north of Sweden, for Gotland, sharing infrastructure is limited as an island distant from the mainland. Shared infrastructure at present includes the subsea electrical cable that provides the majority of Gotland's electricity as well as medical service provision with Region Stockholm. A clear implication of Gotland's island status is that it is not eligible for the majority of Sweden's transport infrastructure funds. These funds target major roads and rail network improvements and, since Gotland has no major roads and no rail lines, it cannot access this large funding pool (Region Gotland, 2019<sup>[7]</sup>).

Because most forms of infrastructure are characterised by economies of scale, the small population of the island leads to constructing small capacity infrastructure systems that have high unit costs relative to those in more largely populated regions. Water and sewer pipes, and electricity distribution lines all have to run long distances with few connections per kilometre. While some forms of infrastructure can be provided by for-profit investors, such as telecommunications or even water and transport systems, Gotland faces challenges in meeting private firms' investment criteria due to its small size, low-density and seasonal demand variability. The result is high construction costs for infrastructure that cannot be readily paid for by the local population through user fees or local taxes. This in turn makes being able to make investments in infrastructure dependent on funding being made available by the national state or the EU.

Climate change and the needs for environmental protection and climate adaptation make infrastructure challenges complex. Gotland's most recent regional development plan, *Our Gotland 2040*, clearly identifies dealing with climate change as a crucial factor influencing future development actions for the region. Indeed, one of the five main societal challenges identified in the strategy is to move Gotland to higher rates of energy efficiency and increased sustainability. Hotter summer temperatures will make existing seasonal water shortages more serious. The summer season already experiences low rainfall and hotter temperatures are likely to increase evaporation rates from water storage. Hotter temperatures will also tend to increase water use by households and agriculture as well as the risk of fire, which in turn will increase the demand for water. Furthermore, while there is a need and will to generate more renewable energy through wind power (there are even proposals to export potential wind power), significant challenges involve finding suitable locations for wind turbines considering local biodiversity protection of white-tailed eagles and golden eagles as well as the expansion of the armed forces.

Climate change may also significantly alter travel modes to and from the island. In *Our Gotland 2040*, the region has set itself the challenge of having a climate-neutral energy supply by 2040. Consequently, ferry service and air service are currently preparing to undergo a significant transformation. Aiming to move away from fossil fuels, the Gotland Horizon project, a private sector-led initiative, seeks to establish Sweden's first large hydrogen-powered vessel for passengers and freight. Similarly, airplanes are intended to become electric. A new aircraft-charging infrastructure at Visby Airport has set the foundation for future electric aviation from 2021 onwards. The shift to electricity-powered transport, on the road as in the air, as well as hydrogen-powered ferries might increase the demand for electricity on the island as well as the need for electric and hydrogen charging stations and other supporting infrastructure.

The military presence also plays a role in Gotland's infrastructure decision. In 2018, the Gotland Regiment was reconstituted after being disbanded in 2005. While it currently has just over 300 personnel, including civilian support staff, there are expectations that the number of people will increase in the near term as Sweden reinvests in strengthening its military capacity. Because many of the facilities that used to house the regiment were disposed of when it was disbanded, there will be a new construction cycle to rebuild capacity. An immediate impact of reconstitution is on the current land use development plan for Gotland since land that was expected to be available for housing and other uses will now remain in military hands. In the near term, as the regiment expands, there will also be additional pressure on the moderate-income rental housing market, as incoming soldiers and other staff seek accommodation. Further, the regiment will increase the demand for water and sewage treatment and place some increased demands on social infrastructure, particularly medical care. As needs increase because of national security interests, Region Gotland should partner with the national government and military to ensure that whatever new infrastructure is built to meet the military's needs can also meet the island's wider needs: the financial burdens of this are shared.

## Electricity

The main source of electricity on Gotland is two high-voltage direct current undersea cables that supply power from the mainland. The first cable began operating in 1954 and a replacement cable was installed in 1983, with a supplemental parallel cable installed in 1987. The current link is now nearing the end of its expected life in 2035. The main purpose of the two current cables is to import electricity from the mainland to Gotland; but as wind power is expanding on a larger scale on Gotland, demands for export production from Gotland to the mainland when production exceeded consumption was also discussed. However, the ageing connection with mainland Sweden was not originally built for switching between import and export. Furthermore, the ageing of the cable seems to cause power failure across the whole of Gotland (Swedish Energy Agency, 2019<sup>[2]</sup>). Power to the cable is provided by the Swedish national grid operator and, on Gotland, the local power company operates the island distribution system.

All electricity produced on Gotland is today renewable with the exception of the electricity production that takes place for reserve power. Conditions for producing electricity from wind and solar are very good on Gotland (Swedish Energy Agency, 2019<sup>[2]</sup>; Region Gotland, 2019<sup>[8]</sup>). Wind power currently meets 40-45% of the yearly electricity demand on Gotland (1 000 gigawatt hours or GWh): with excellent wind speeds and its open position 90 km from the mainland, the resulting electricity generation though wind now often exceeds demand, offering possibilities to potentially export power. Alternatively, surplus wind capacity could be used to produce green hydrogen on the island. The hydrogen can then be used locally to fuel backup generators when wind speeds are low or even refill the planned hydrogen-powered ferry. In addition to wind power, a small amount of electricity is also produced today from solar cells and hydropower.

Gotland has set itself the challenge to have a fully renewable energy system by 2040. Before 2020, the objective was to meet 100% renewable energy supply for households and businesses on Gotland, except for industrial fuels for the cement and lime enterprises. After running a feasibility study, the Swedish government commissioned the Swedish Energy Agency to make Gotland a pilot area for Sweden's transition to a sustainable energy system. In the spring of 2019, the Energipilot Gotland roadmap was launched. Gotland therewith became a pilot case for smart and renewable energy systems, where experiences from other national projects as well as projects on the island are being combined (Swedish Energy Agency, 2019<sup>[2]</sup>) (for more information on different projects and measures that exists on the island to advance the fully renewable energy transition, see also Box 2.2). While some projects are part of the roadmap, others are linked to private initiatives inspired by the political decision.

### Box 2.2. Selected projects and initiatives on Gotland fostering the transition to a fully renewable energy island conducted by public and private stakeholders

- **Local Energy Centrum:** Owned by Region Gotland and Gotland Energy Centre, strengthens Gotlanders' ability to switch to an efficient and sustainable energy system by raising the general level of knowledge and helping with applications. Together with other actors, activities, initiatives and projects are being implemented with the aim of a fully renewable energy system by 2040.
- **Smartroad Gotland:** This unique pre-commercial demonstration project has the purpose of building knowledge on wireless charging of electric trucks and buses on a public road. The 4 km road stretch, of which 1.6 km is electrified (800 m in both directions), connects the airport with the town of Visby. The project is implemented by the consortium for Smartroad Gotland, under the leadership of Electreon AB. This technique has the potential to massively reduce the need for fossil fuels and simultaneously decrease air and noise pollution.

- **Austerland Energi – New Energy for Oostergarnslandet:** Bottom-up LEADER<sup>1</sup>-funded project aimed at developing strategies for how a local energy transition presents a model of how a local energy network can be structured and implemented.
- **Biogas** – locally produced fuel: Gotland has several biogas plants on the islands that are used to power cars and public transport, and provide heating and electricity for households. Using biogas allows closing resource cycles from agriculture, municipal waste and wastewater.
- **Off-Grid DIY, Renewable energy for local development:** This LEADER project, which ran from 2018 to 2020, developed a do-it-yourself handbook for a sustainable energy transition which contains detailed descriptions for the construction of small-scale wind, solar and bioenergy plants. The aim is for farms and households in rural areas to be able to install renewable energy production facilities themselves.

Source: Austerland Energi (n.d.<sup>[9]</sup>), *Austerland Energy In Brief*, <https://austerlandenergi.se/wp-content/uploads/The-Austerland-Energy-Project.pdf>; Smart City Sweden (n.d.<sup>[10]</sup>), "Wireless electric road charges vehicles as they drive", <https://smartcitysweden.com/best-practice/409/wireless-electric-road-charges-vehicles-as-they-drive/>; CAB Gotland (n.d.<sup>[11]</sup>), *Sustainable Transport*, <https://www.lansstyrelsen.se/gotland/miljo-och-vatten/energi-och-klimat/hallbara-transporter.html>; LEADER Gute (2020<sup>[12]</sup>), "Off Grid DIY: Concrete examples of sustainable and small-scale energy solutions", <https://www.leadergute.se/aktuellt/off-grid-diy-konkreta-exempel-pa-hallbara-och-smaskaliga-energilosningar/>; Region Gotland (2020<sup>[13]</sup>), *Ratta Gront*, <https://gotland.se/rattagront/>; Swedish Energy Agency (2019<sup>[2]</sup>), *Energy Pilot Gotland*.

Only a small number of electricity users – the cement plant, dairy processing plant and abattoir – require significant amounts of power but these users, particularly the cement plant, account for a relatively large share of total electricity demand. Moreover, they provide a significant share of local income and employment either directly or indirectly in the communities in which they are located. While it may be possible for renewables to take on a larger role in electricity supply, their intermittent nature still poses a challenge for large commercial entities and some major government service providers, such as water and sewer companies. This suggests that replacing the existing cable or alternative solutions including identifying electricity storage options may be vital if the local economy is to retain its current degree of diversification and develop in a way that will triple the current electricity demand. Furthermore, an important prerequisite for being able to increase electricity production on Gotland is also the need to adapt and strengthen the regional and local electricity network (Swedish Energy Agency, 2019<sup>[2]</sup>).

Most measures of the Energipilot Gotland roadmap are intended to supplement existing transmission, while the existing cable remains in place. The need to eventually replace the cable is only discussed at the margins and understood as a given. More concretely, the notion of developing "flexible and robust electricity systems" covers the security policy dimension and Gotland as a central military importance and mentions previous disruptions and interruptions of energy supply. Measures around developing a flexible and robust electrical system involve the increased delivery and security of renewable electricity production, including storage and developing a local market for flexibility as well as study regulations and business models linked to flexibility. It is argued that Gotland will also need a link to the mainland in the longer term for its electricity supply, as an isolated system would require very large storage (Swedish Energy Agency, 2019<sup>[2]</sup>). The fact that energy needs could fundamentally change due to the cement plant's decision is not discussed. Consequently, the energy roadmap and the discussion on the replacement of the energy cable seem somewhat disconnected. With changing conditions, for instance, energy needs from industry and the security situation in the Baltic, the measures of the energy roadmap would also benefit from an update and reconfiguration in relation to the latest developments.

The energy roadmap mentions that different instruments and measures defined should be followed up on and evaluated. Yet, there seems to be no overall evaluation of the measures and how far they achieved their respective goals or would need to be adjusted. It would be advisable for the Swedish Energy Agency and other stakeholders involved in the energy pilot to publish their evaluation findings and consequently

adjust and update the measures defined in 2019. Such a general update could include considerations of what the cable would need to provide under different scenarios. This would greatly add to strengthening the roadmap's goals and allow a better understanding of what consequences different choices will have on the future of Gotland. Overall, the evaluations should show how well the instrument or measure responds to the intended outcome and how it has contributed to achieving overall goals, and in part what other effects have arisen in the meantime and that may need reconsideration.

The cost of replacing the power cable is well beyond the capacity of the local economy and is a responsibility of the national government. While replacing the cable is a high priority for Gotland, it is less of a priority for the national power authority, which faces multiple demands for major investments, most of which serve a larger population than Gotland's. Questions about the timing of a replacement cable may already be affecting investment decisions by larger power users on the island, particularly as power reliability becomes an issue as the existing cable ages.

Electricity demand on the island is expected to increase due to the electrification of industrial sectors but also in part as a result of increased numbers of residents, particularly seasonal homeowners, and greater tourism numbers (Swedish Energy Agency, 2019<sup>[2]</sup>). Climate change adaptations and modern telecommunications will also play a role in increasing demand. Accommodating these changes will require additional outlays on improving the local electricity distribution system and on upgrading the internal electrical systems as well as energy efficiency in many buildings as is recognised in *Our Gotland 2040*.

How much electrical power the island will need in the future centres greatly depends on the viability of the major industrial power consumers. The cement plant is a major carbon emitter and, while it is a major source of cement in the Baltic region, its ongoing viability hinges on continued environmental permits, meeting emission requirements as well as on the provision of an upgraded cable (see also Chapter 1). Similarly, the dairy plant and abattoir exist because the dairy industry on the island remains a major agricultural activity. But, individual herd sizes are small, which leads to high costs of production and summer water constraints are already limiting feed availability. In the future, this could lead to too few cows to justify keeping the facilities open. If these major electricity consumers close, then power needs will be significantly smaller. In addition, requirements for more robust energy systems also need to be considered in relation to changing security policy situations and the increasing military regiment on the island.

There is considerable potential for greater wind production, both on-shore and off-shore, but challenges exist. The first is the potential biodiversity protection of white-tailed eagles and golden eagles and the military's need to be able to operate in the airspace. For instance, an EU directive mandates more renewable energy investments but another directive mandates the protection of birds. Reconciling these two conflicting requirements has so far limited the ability to find places suitable for new wind investments. Second, wind remains an intermittent power source and because Gotland is an island, there will be a need for a major investment in backup power if the cable is not replaced. However, if the cable is replaced, the logic for more wind investment is weakened because the island will have a large and stable source of clean power unless there are options to export or convert into hydrogen.

Gotland could play an important role in combining various technologies into small-scale solutions that can be adapted to other more remote places that must rely on local energy sources. Smaller renewable energy investments may continue to make sense when they can be integrated into a more complex system. For example, there is already a demonstration project on Gotland that couples solar power with a small desalination plant that serves a remote community (Box 2.4). During the day, the sun powers the desalination process to produce water that can then be stored. In this context, the intermittent nature of solar is not an issue because sufficient water can be stored at low cost until the sun returns. Moreover, because the community is a long distance from a large water treatment facility and the cost of building a water supply system to the community is high, the reduced efficiencies of the local system become manageable.

## **Water and wastewater**

On Gotland, the island's distinctive geology and hydrology create special conditions and challenges regarding access to good quality water. The thin soils, impermeable rock and lack of reservoirs in the sedimentary bedrock for instance lead to limited reservoir capacity and much of the precipitation runs off to the Baltic Sea. Further, digging ditches to dry out swamps and lakes at the beginning of the late 19<sup>th</sup> century, to get more farming land, decreased the water supply. Before this, it is said that Gotland had a lot of swamps and lakes (*träsk*). While annual precipitation is currently considered adequate, storage capacity does not allow precipitation from the winter to be stored to satisfy needs in the summer (Dahlqvist et al., 2019<sup>[14]</sup>). According to the standards of the EU Water Framework Directive, Gotland has an unsatisfactory (ground) water status (Ebert, Ekstedt and Jarsjö, 2016<sup>[15]</sup>). In 2016, the situation was so severe that trucks carrying water were running daily between the town of Visby to different areas along the coasts. In an attempt to conserve water, the regional government on Gotland has since passed a watering ban, limiting the use of water in the summer months (Svergesradio, 2016<sup>[16]</sup>).

A key regional development challenge for Gotland is to find ways to increase the quantity of water and supply good quality water. Water demand almost doubles in six weeks from mid-summer (Region Gotland, 2021<sup>[17]</sup>). In addition to tourists, there are also increased needs by agriculture for irrigation and livestock consumption in the summer months. Future expansion of the key tourism and agriculture industries as well as the regionally set targets for population growth depend on providing additional amounts of water. In some areas of the island, water shortages have already hindered economic development due to strict regulations for the building of new houses and the start-up of new businesses that consume water. For instance, Region Gotland did not accept new connections to the water grid in southern Gotland (south of Tofta) for a number of years. This led to no new building permits being issued in areas with municipal water and sewage.

About 40% of households are supplied with water from their own wells and are not connected to the public water infrastructure. Most of these houses are outside the densely populated areas that are covered by public water facilities. The remaining residents are connected to the public water supply and receive water from water treatment plants run by the municipality (Region Gotland, 2021<sup>[17]</sup>). With an approximate connection rate of 60% to municipal water, Gotland is on the lower end in Sweden. For Sweden as a whole, the proportion of the population connected to the municipal network is about 87%, with large regional variations. The lowest degrees of connectivity are mainly found in the western parts of Värmland County, Jämtland County and the inland municipalities in Västerbotten County. Overall, only 4 of the country's 290 municipalities have an accession rate of less than 50% of the population and the rate of connected households is constantly rising (Statistics Sweden, 2016<sup>[18]</sup>). Around 65% of the public water supply system relies on groundwater. The remaining 35% of the water comes from lakes and desalination plants. There are 25 different water treatment plants on Gotland, of which 2 are desalination plants, 2 surface water plants, 1 treats water from a former stone quarry and the rest are groundwater treatment plants.

As importing water from other regions is generally difficult, and even more so for an island, water has been collected by the construction of reservoirs for irrigation. In addition, a small amount of water comes from desalination plants (see Box 2.4). While desalination can provide a vast amount of water, the costs are currently high. Desalination is 25 times more costly per cubic metre than groundwater extraction on Gotland (Sjöstrand, 2019<sup>[19]</sup>). Moreover, large-scale desalination would require a significant expansion of the electricity supply. On the industrial side, the major water user is the cement plant and the rest of the limestone industry, which provides most of its water needs directly through the use of exhausted limestone quarries that have been converted to reservoirs. The cement plant and other industry actors expand their internal storage capacity over time as they abandon working quarries but remain dependent on precipitation to fill them. While farmers largely manage their own water needs by creating dams and ponds to store water, their retention capacity is limited by topography and precipitation amounts.

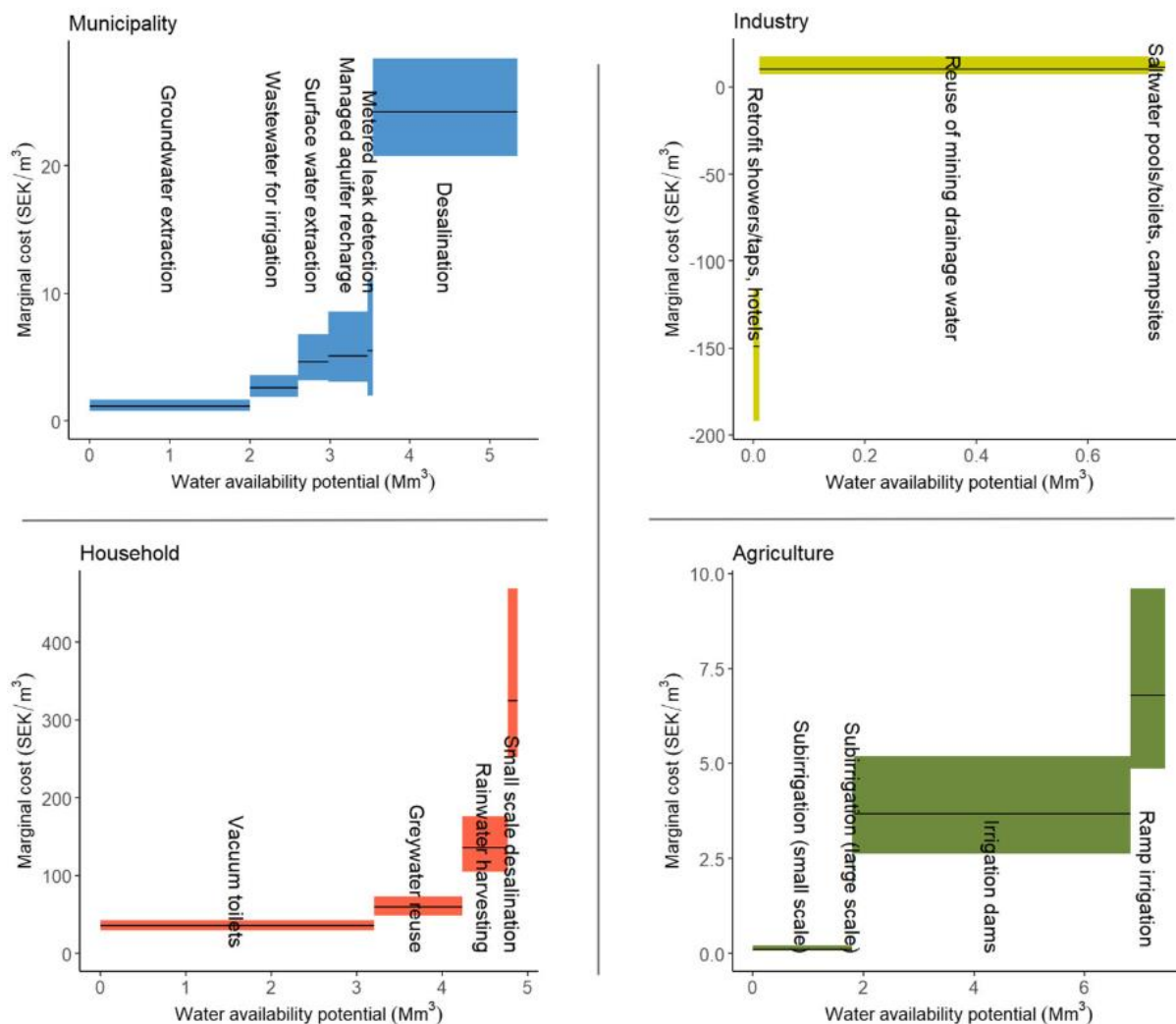
Gotland is at present largely dependent on precipitation and ground water for its water supply. Yet, groundwater on Gotland has an unusually high concentration of boron, which exceeds the allowed concentrations in Sweden and needs to be treated, which in turn lowers water supply because water production is less efficient (Johansson, 2020<sup>[20]</sup>). Precipitation can be stored for future use but there are costs in creating reservoirs or other storage systems. More innovative circular solutions to water regeneration try to combine water retention, storage and desalination. For instance, a national-funded testbed is under development in southern Gotland, involving the IVL Swedish Environmental Research Institute and Region Gotland. The project is trying to address the challenge of rapid drainage where winter precipitation is not being collected and stored so it can be used in the summer when summer precipitation is scarce. Several technologies to increase water availability are being applied in the project. They include an integrated system for rainwater harvesting from drainage ditches, automatic hatches in large ditches and artificial surface water dams, artificial infiltration for groundwater, construction of groundwater dams for subsurface water storage, wastewater reuse and climate-neutral desalination based on solar energy. An important and critical part of the testbed project is communication and engagement activities with local stakeholders, such as farmers and citizens. The key to the project is also that options shall be both environmentally friendly and economically viable. Economically, the ambition of the project is to attract larger projects and companies wanting to develop sustainable systems for mitigating water scarcity, which is rapidly becoming an issue on a global scale. The project is funded by Vinnova and accompanied by a large consortium of public and private actors (Smart City Sweden, 2022<sup>[21]</sup>). If successful, this innovative approach could stimulate the sale of local expertise to regions in other countries.

Forecasts of water demand for Gotland estimate that the total water demand on the island will increase by more than 40% through 2045. In 2015, water use was at a total of 17.6 million cubic metres per year ( $\text{Mm}^3/\text{year}$ ) with the biggest uses by private industry, 6.1  $\text{Mm}^3/\text{year}$ , irrigation 5.0  $\text{Mm}^3/\text{year}$  and households (excluding tourism) 3.7  $\text{Mm}^3/\text{year}$ . By 2045, needs are estimated to rise to 27.4  $\text{Mm}^3/\text{year}$  largely due to significant increases in needs for irrigation, industry and animal keeping (County Administrative Board, 2018<sup>[22]</sup>). Climate change has the potential to worsen the current water imbalance. Looking at water availability (WA) as an indicator for water stress, changes in WA for the period 2021-50 compared to the reference period (1961-90), are projected to be -22.5% in spring and -17.5% in the summer, with an average decrease of -13.3% for Gotland. These projections are based on climate change occurring with very little climate change mitigation (or “business as usual”) (Johansson, 2020<sup>[20]</sup>). Furthermore, projections are that the weather will become hotter. Both of these changes imply a greater need for significantly more water storage on the island to offset higher evaporation rates from reservoirs and buffer shortfalls in precipitation.

The sea level rise of the Baltic Sea might also impact the water supply on Gotland and economic development options. The pace of sea level rise is increasing: according to the Intergovernmental Panel on Climate Change (IPCC), a global mean sea level rise of 0.63 m is likely to occur by the year 2100. Research shows that in the case of a 2 m sea level rise, 3% of the land area of Gotland, corresponding to 99  $\text{km}^2$ , will be flooded. The most strongly affected areas are of touristic or natural value, including camping places, shore meadows, sea stack areas and endangered plants and species habitats. Further, 231 out of 7 354 wells will be directly inundated and the number of wells in the high-risk zone for saltwater intrusion will increase considerably. Monitoring and planning are required to meet these climate-induced changes. They are likely to require considerable economic means and prioritisation (Ebert, Ekstedt and Jarsjö, 2016<sup>[15]</sup>).

Research has shown that the largest potential contributors to WA are irrigation dams on farms, which have the potential to meet the entire forecast irrigation requirements (see also Figure 2.1). On the municipal side, increased groundwater extraction and desalination offer the greatest WA potential yet, as mentioned, desalination is much more expensive, while increased groundwater extraction could harm aquifers. In particular, increased extraction of groundwater is problematic because it can lead to a drop in the water table that can allow an inflow of sea water from the Baltic that would make the aquifer unusable.

**Figure 2.1. Marginal abatement cost curve for different measures to increase water availability on Gotland**



Source: Sjöstrand, K. (2019<sup>[19]</sup>), "Marginal abatement cost curves for water scarcity", <https://doi.org/10.1007/s11269-019-02376-8>.

### *Water retention*

Better management of existing water retention and distribution systems offers the possibility of reducing waste and losses. Because the island is a closed system, with no potential for external supply, water losses due to evaporation, leakages into the subsurface or unnecessary outflows into the Baltic Sea reduce the amount of available water. The amount of precipitation cannot be altered but, by developing an expanded system of linked reservoirs, it should be possible to retain more precipitation for future use. A key step will be to reduce losses from reservoirs both from leakage and evaporation possibly by lining ponds and quarries and using more tanks and covered storage facilities. Efforts to reduce runoff from fields should be undertaken and creating more wetlands to improve aquifer recharge should be explored.

The future of the cement plant is significant in this consideration. While it largely manages its own water supply, it is both a major consumer of water and a major source of storage capacity. Continued operation of the cement plant offers considerable economic benefits to Gotland, both as a direct source of income



and employment, as a source of tax revenue and in terms of diversifying an otherwise specialised economy.

### *Desalinisation*

Gotland has already introduced two desalinisation plants and more of these may provide a way to augment the water supply, especially in more remote communities where constructing water distribution pipelines is particularly expensive given the low level of demand (Box 2.3). If these plants are coupled with a renewable energy system, as is the case in the pilot village of Herrvik, there are opportunities to use inexpensive power for desalinisation and store water for times when solar or wind conditions are poor.

#### **Box 2.3. Desalination is another solution to reduce water shortages on Gotland**

Gotland's first desalination plant was inaugurated in the village of Herrvik on Gotland's east coast in 2016. It is Sweden's first larger desalination plant for municipal supply. The plant uses reverse osmosis to convert up to 800 m<sup>3</sup> of seawater per day into drinkable water, which is distributed to surrounding communities. The second plant in Kvarnåkershamn on Gotland's west coast supplies drinking water for the south of the island. This second facility has a maximum production capacity of 5 000 m<sup>3</sup> per day, which makes it northern Europe's largest. Desalination is meant as a complement to existing water resources and to avoid the overuse of groundwater and aquifers.

Source: Region Gotland (n.d.<sup>[23]</sup>), *Information om Bräckvattenverket i Herrvik på Gotland - Först i Sverige!*, <https://www.gotland.se/91546>; Region Gotland (n.d.<sup>[24]</sup>), *Gotlands grundvatten och dricksvatten*, <https://www.gotland.se/94272>.

### *Water recycling*

Enhanced wastewater recycling is a clear objective of the EU Water Framework Directive. Currently, little use is made of wastewater on Gotland and most sewage is treated and discharged into the Baltic Sea. Yet, some irrigation dams can be found in Hemse, Roma and Stånga. Reconfiguring water treatment plants to provide a higher level of treatment and the possibility for on-land use will be expensive but it can reduce the need for potentially equally expensive desalinisation or storage facilities as well as provide environmental benefits, especially when used over longer periods of time. Treated water can be used to enhance agricultural productivity, which is now limited by water shortages. This could allow farmers to diversify their operations by introducing more fruit and vegetables to supplement their dairy enterprises. Experiments with this are made in Roma, where wastewater is treated and then used by farmers.

## **Transport infrastructure**

### *External links*

As an island, Gotland cannot rely on road or rail to move goods and people in or out of the region. This makes it reliant on ship and air travel for all of its physical connections to the rest of Sweden and other countries. Since most passenger and freight moves mainly by rail and road, Gotland faces an additional transshipment cost to connect to the rest of Sweden. Both ships and planes have fixed capacities and are subject to relatively high fixed costs. As a result, adding an additional passenger or item of cargo to an underutilised plane or ship adds little incremental cost until its capacity constraint is met. But conversely, operating a plane or ship that is significantly underutilised leads to considerable losses because fixed costs are not covered. This phenomenon makes it unlikely that either plane or ship operators will hold excess capacity in reserve and will try to operate their craft at as close to full capacity as possible.

Transport provides physical connectivity that allows the movement of people and goods between places. The essence of a network is that the more places a region has direct connections with, the better its connectivity. In this regard, Gotland has a limited network for off-island transport. Direct connections are essentially limited to the proximity of Stockholm and, while ferry and air connections can be increased as demand expands, a majority of passenger traffic still come through from Stockholm (75%) and Oskarshamn Stockholm (50%). A consequence of this is that Gotland can be perceived as a remote suburb of Stockholm in terms of the flows of people. This can be seen in a large number of visitors and second homeowners that come to Gotland from Stockholm and that international visitors must pass through Stockholm as they arrive and leave.

### **Ferries**

For Gotland, ferry service is the crucial element of transport infrastructure (see also Chapter 1). The ferry service has two components: terminals and ships. Terminals are the main fixed investment and must be designed with future capacity needs in mind both in terms of passenger numbers and the number of docks for vessels. Crucially, Region Gotland only controls the terminal structure on the island and must rely on capacity decisions by other jurisdictions for their end of the ferry route. If the corresponding terminal is inconveniently located for passengers or lacks sufficient capacity, this can reduce travel to Gotland. Both terminals and ships are configured to manage significant amounts of freight as well as passengers. By contrast, ships are flexible in both in terms of size and frequency of trips, subject to terminal capacity. In peak season, both larger ships and more frequent trips are scheduled to meet higher levels of demand.

A challenge for the ferry service is that procurements for this very service have been characterised by extremely limited competition among tenderers. On this basis, the government has commissioned the Swedish Transport Administration to investigate four models for the ownership and operation of ships. The findings of the report entitled *Analysis of Alternative Models for Ferry Traffic to Gotland* were published in 2021 and outline the four models. These include: i) coherent procurement of vessels and operations including possible guarantees; ii) state-owned vessels and procured operations; iii) state-leased vessels and procured operations; iv) Gotland traffic entirely under state auspices. The study concludes that the second model (state-owned vessels and procured operation) would be the best choice, removing the competition constraining factors of ferry provision and breaking the long-standing trend of lack of competition. Yet, it also has major risks, including lack of acceptance and skills, as this has never been attempted before. As the proposed model, however, is not feasible to implement until 2027, the first model (currently in place) needs to be conducted to secure traffic after the current agreement expires (Swedish Transport Administration, 2021<sup>[25]</sup>).

In line with Gotland's renewable energy ambitions, the current ferry operator is experimenting a project, Gotland Horizon, to develop a zero-emission vessel based on hydrogen fuel. The project is conducted in collaboration Rederi AB Gotland, Gotland Tech Development and Destination Gotland, together with various actors and involves research and technology projects to create the ships of the future (Gotland Horizon, n.d.<sup>[26]</sup>). Overall, the impact of climate goals on the Gotland ferry traffic is still largely unclear. Estimates indicate that, if traffic continues as such (i.e. with the same energy consumption but replaced by alternative fuels), the prices would double by 2045. Yet, the cost of future energy processes, especially for renewable, is very difficult to estimate. Further, alternative modes of changing speeds, routes or frequency of routes could play a role.

The Swedish Transport Administration considers that the climate goals are most likely achieved through a combination of reduced energy use and renewable fuels. As there is great uncertainty about fuel costs, there are strong incentives to reduce energy consumption in order to keep down the risk of cost increases for traffic. No matter what they include, all changes to ferry traffic are likely to have some socio-economic implications on Gotland. For instance, they could impact affordability of travel, the influx of visitors (it is assumed that hospitality industries have been driven by increased ferry accessibility) and transport times for goods, especially affecting time-critical goods. Consequently, public concerns on Gotland about

changes in traffic are high. While it is too early to provide concrete answers to what effects and consequences changes would entail, implementing changes, in the long run, requires preparation, dialogue and foresight to enable adjustment and reduce the risk of negative consequences for Gotland as a region (Swedish Transport Administration, 2021<sup>[25]</sup>).

### **Air travel**

Gotland has a regularly scheduled air service that expands in terms of flight availability in the summer season. However, virtually all flights are to Stockholm area airports. If air travel to Gotland is to expand beyond a two-way flow to Stockholm, it will be important to add other connections, if only during the main tourist season. Better flight connections are particularly important for international tourists, who may be reluctant to change airports to get a flight to Gotland or who may not wish to spend time in Stockholm.

While air travel is far more expensive than ferry travel, it is by far quicker. The fast train from Stockholm's main airport makes the connection to the city centre a rapid process. For business travel to and from Gotland, this can be a considerable advantage. In preparation for future sustainability needs, electric airfare is being considered on Gotland. Visby Airport is equipped with three charging stations for electric aircraft preparing for the uptake of electric aviation in 2030 nationally. The project is a collaboration between Swedavia, the business association Tillväxt Gotland, Region Gotland and the regional tourism industry association Gotland's Besöksnäring (Swedavia Airports, 2021<sup>[27]</sup>).

Improving connectivity to Stockholm through a more frequent or faster ferry service and more flights would make it easier for people to move between the two regions. Typically, improved connectivity increases integration between markets and consequently Gotland could expect to become more specialised in providing hospitality and leisure services to Stockholm. This would likely increase the number of seasonal residents and retirees, which would have implications for the housing stock in Visby and other communities. Greater integration would also make Gotland more dependent on decisions and actions by people who have a weak relationship with the island. While there are benefits in stronger integration, possible consequences such as a more limited job market in terms of types of careers and a greater focus on low-wage service jobs in the leisure and hospitality sector and retail are also possible. Expansion of the military presence will increase the demand for transport infrastructure. While the military may use its own ships and planes for some of its transport needs, it will require increased access to ports and airfields.

### *Internal links*

The road network on the island is extensive. Roads are typically narrow and many have no shoulder. Bicycles are increasingly popular with visitors and residents and the road network is not adequate in many rural areas for both vehicles and bicycles. While Gotland is extending its network of bicycle paths to parallel many of the main roads, the grid of bicycle paths is currently more developed in the southern and northern parts of the island. With the development of e-bikes, the potential for longer bicycle trips has increased, as has the interest in activities for tourism that are bicycle-based. For example, the Bergman Museum on Faro now offers day trips by bicycle to various sites where Bergman filmed scenes on the island.

The public transit system on Gotland is extensive but service on rural routes can be infrequent which makes it less useful for some users. Increasing the frequency of the scheduled bus service is not feasible given the relatively low ridership on many routes. This is a common problem in rural areas across the OECD. Many rural regions have developed alternatives to conventional bus routes by introducing transit on-demand systems that make use of taxis, small vans or other vehicles that respond to travellers' requests through a dispatch system. Examples include: the 100-won taxi in Korea (Sang-Hun, 2021<sup>[28]</sup>), JustGo in North Lincolnshire, UK (North Lincolnshire Council, 2022<sup>[29]</sup>), and BRATS in Baldwin County Georgia, (Baldwin County, 2022<sup>[30]</sup>). Each of these systems uses a mobile-phone-based request and dispatch system to connect riders with a small bus or taxi.

As Sweden promotes the conversion of vehicles to electric power, a significant increase in charging capacity will be required. Because the number of vehicles on Gotland increases significantly in the summer period a major investment in public rapid charging systems will be important to accommodate visitors. Gotland has already embarked on a demonstration project to introduce wireless charging on the major road that connects Visby and the airport as a potential way to address the problem of building a large number of charging stations (Nhede, 2019<sup>[31]</sup>). The precommercial demonstration project has the purpose of building knowledge on wireless charging of electric trucks and buses on public roads. The 4-km road stretch, of which 1.6 km is electrified (800 m in both directions), connects the airport with the town of Visby.

Gotland's sustainability ambition is also visible in transport projects. Between 2018 and 2021, the three-year collaborative project between the county administrative board (CAB) of Gotland and Region Gotland promoted sustainable transport and sustainable travel through:

- Knowledge-enhancing and supportive efforts against transport companies to promote the transition to more sustainable transport.
- Promoting knowledge and sustainability requirements in orders and procurement of transport and mobility services.
- Efforts to increase knowledge and promote sustainable travel among the inhabitants of Gotland, mainly in commuting, and with a special focus on public transport in the form of bus travel (CAB Gotland, n.d.<sup>[11]</sup>).

### ***Digital infrastructure***

While a longstanding major factor in economic development, connectivity, especially digital connectivity, is increasingly important. Because digital infrastructure provides more timely information, those with better access can make better decisions that give them a competitive advantage. This is true for nations, regions, local governments, firms and individuals.

COVID-19 has accelerated the digitalisation of working and social interactions. Global travel restrictions and social distancing measures to contain the pandemic have forced firms and workers to perform a wide range of daily functions through virtual means and, in turn, have accelerated the uptake and acceptance of remote working, which will likely remain in its hybrid form after the pandemic. Remote working has already revealed a number of benefits to our lives including reduced transport-related GHG emissions, greater flexibility of working and potential cost savings for firms. Remote working may also create new job opportunities for people who would not have otherwise joined the labour market, particularly people seeking to work part-time and people with certain disabilities. Hence, a more hybrid form of remote working is likely to be one of the lasting legacies of the pandemic (OECD, 2021<sup>[32]</sup>).

Remote working opens up new opportunities for regions outside large cities to attract new residents, boost economic activities and revitalise communities. Attracting new workers and firms that embrace remote working offers rural areas the possibility to revitalise regions. People with the potential to work remotely could be attracted to relocate to regions offering a high quality of life, for instance through better access to environmental amenities. Firms paying high-location costs in cities could also find it profitable to change their real estate strategy, either by downscaling or by relocating part or indeed all of their headquarters (OECD, 2021<sup>[32]</sup>). While there might be some risk for the reduction of knowledge and higher skills in local firms and organisations, as employment opportunities can be more attractive in mainland-based organisations, Gotland would still benefit from people living and thus consuming on the island. Overall, the long-term effects of remote working on demographic and/or commuting patterns and implications for rural development still need to be better understood. In particular, understanding how high-skilled people teleworking in rural communities can contribute to local economic development is an area of interest for many regional policy makers.

Gotland has made a major effort in building a strong foundation for its digital infrastructure. In 2020, 88% of the population/households had access to the fibre optic network. Almost 92% of the permanent population/households have access to the network and just over 60% of all properties with holiday homes. Their action was recognised as a good practice example by the European Broadband Awards 2017 competition, highlighting the effort of local parish organisations and a model that increased the interest of the local market and attracted the main telecommunications actors to compete for parish projects (Box 2.4). Also, in terms of connectivity speeds, the island compares extremely well, performing better than the remote regions and island benchmark (see also Chapter 1). Download speeds are increasingly important because online services require higher data transmission rates. Low transmission capability and speed severely limit access to content-dense applications and websites. As a result, fast stable Internet access has become a necessity for those wishing to benefit from the full economic potential of the Internet (Ibrahim and Bohlin, 2012<sup>[33]</sup>).

#### **Box 2.4. “Optic fibre to all houses on Gotland, Sweden” – The village fibre optic approach**

“Optic fibre to all houses on Gotland” won the European Broadband Awards 2017 competition in the “Innovative models of financing, business and investment” category. The project brought fibre optic Internet to the whole of Gotland, offering a robust and resilient infrastructure ready to support present and future demands for high capacity. The 100% fibre optic network to the home is deployed through underground trenches. Each parish (92 in total) has a local node from which a network is usually distributed to all houses.

Individual house owners have invested significant amounts of money and time into this project. Public administration has spent EUR 4.3 million, of which EUR 2 million from EU funds, while the people of Gotland paid some EUR 12 million. To keep the costs low, people offered their land for cable rollout and even did the digging themselves. In total, many offered 3 days of manual labour work. The competing telecommunications actors paid up front a rent to the parish fibre optic association for providing services from the parish local node to the houses. As a result, new methods were also developed, new customer packages were created and the project had a huge impact on the attractiveness of the island. Overall, the total costs have been kept as low as EUR 10 per metre for infrastructure on the ground. This was achieved thanks to the model of parish projects that increased the interest of the local market and attracted the main telecommunications actors to compete for parish projects.

According to a study on changing travel patterns carried out by Sweden’s Aviation Agency, people from Stockholm with houses on Gotland flew back and forth to a much greater extent and patterns changed from weekend to Thursday-to-Monday stays on Gotland. When asked, the majority claimed the change was due to better connectivity from their summerhouse and thus, could combine quality of life with efficient working hours on the network.

The project can be categorised as the Swedish “village fibre optic” approach, which is based on the premise of community involvement to plan, build and operate local fibre optic networks in co-operation with municipalities and commercial operators. Proponents say the village fibre optic approach facilitates fibre optic deployment at a considerably lower cost compared to commercial operators, through a combination of three factors: i) handling of permissions; ii) excavation work and trenching; and iii) voluntary work with respect to aggregation of demand.

Moreover, the deployment of fibre optic networks through village fibre optic as well as all other operators is facilitated by consumers’ willingness to pay upfront fees of around USD 2 300 to connect single dwelling units and the possibility to apply for a subsidy from public funds. Deployment costs of fibre optic are much higher in sparsely populated areas than in urban ones and thus, state aid is primarily

intended to offset these differences. Given that village networks are deployed in areas where no commercial operators are deploying fibre optic networks, they meet the key criteria for state aid. Compared to commercial broadband projects, village fibre optic projects can achieve cost savings of some 50% using innovative handling of permissions as well as excavation and voluntary work. A further reduction of some 25% is achieved through state aid, making the connection fee equivalent to that of urban areas.

Source: EC (2021<sup>[34]</sup>), “Good practice: Optic fiber to all houses on Gotland, Sweden”, <https://digital-strategy.ec.europa.eu/en/news/good-practice-optic-fiber-all-houses-gotland-sweden>; OECD (2018<sup>[3]</sup>), “OECD Reviews of Digital Transformation: Going Digital in Sweden”, <https://doi.org/10.1787/9789264302259-en>.

In the last decade, digital infrastructure has seen the rapid growth of wireless networks. In the process, fibre optic remains the backbone for a much more elaborate set of services that can be accessed wherever the user has a connection through the wireless spectrum. In the future, the Internet of Things (IoT) represents the next step in a convergence between information and communication technology (ICT) and economies and societies on an unprecedented scale. It holds the promise of substantially contributing to further innovation, growth and social prosperity and as with any such development, policy makers and other stakeholders need evidence to inform the decisions they will take in the coming years on digital infrastructure.

Sweden has been at the forefront of this market development, especially in terms of machine-to-machine (M2M) communications. M2M connected devices are a small subset of the IoT as, increasingly, IoT-connected devices are becoming Internet Protocol (IP)-based and platform-agnostic (i.e. operating on mobile, fixed and other networks). M2M devices are characterised by autonomous data communication with little or no human interaction (OECD, 2018<sup>[3]</sup>).

In the future, different M2M applications are likely to generate very different usage patterns. Environmental sensors, for example, may only generate very small amounts of data relative to connected bicycles and robots, right up to perhaps the largest amounts in the case of autonomous vehicles. As an M2M leader and likely to be one of the first countries to deploy 5G, as well as having leading automobile and telecommunication equipment manufacturers, Sweden is in a front runner position in terms of digital innovations.

Because of its solid fibre optic network, Gotland has an advantage in comparison to many other rural places that lag fibre optic connections. 5G wireless connectivity promises faster connections but, to get the most out of it, the towers/base stations for 5G signals need to be connected to fibre optic. In some areas, there is a concern that the growth of 5G will aggravate existing rural-urban disparities since urban areas that already have fibre optic will be well placed to get the most out of 5G, while rural areas that lack fibre optic will be left behind. This is not the case for Gotland. Given that many of the most interesting applications for the IoT are rural, for example, to boost productivity and automation in the agricultural sector, and that most rural places are not yet sufficiently connected to make proper use of these technologies, there may be an opportunity for Gotland to become a testbed for emerging rural applications of 5G-connected technologies not just in agricultural applications but potentially also in water, electrical systems and others.

### ***Shortage of moderate-income and rental housing***

In the last decade, Gotland has experienced a rapid increase in the share of housing stock that is being used as seasonal homes and a related increase in the average price of housing. Between 2010 and 2020, 2 184 building permits were granted, of which 1 277 or 58% were for second or holiday homes. Overall, approximately 40% of the total amount of housing is second homes. This is twice as much as the national

average (OECD, 2020<sup>[35]</sup>). The lasting popularity of the island with second home owners has impacted the housing market and has fuelled the rise in housing prices (for both purchase and rent). In 2020, Gotland was the fourth most expensive county in Sweden. The average monthly rent per square metre was SEK 1 128 on Gotland and SEK 1 120 for the Swedish average. In addition, prices have increased significantly in the past years, leaving the municipality to rank 5<sup>th</sup> among the 290 Swedish municipalities in the country with the highest price increase (CAB Gotland, 2021<sup>[36]</sup>). Seasonal homes now dominate new housing since they are the most profitable form of new construction and the share of moderate-income housing, particularly rental housing, is not on par with population increase, making it hard for lower-income households to find and afford a place to live (Chapter 1).

The regional government has tried to provide incentives to developers to build moderate-income and rental housing but, to date, they have largely been unsuccessful because they offset the higher returns from building seasonal homes for high-income households. For instance, land allocation agreements with building companies sometimes clearly state requirements to build rental apartments. Penalties of double the price paid for land are invoked if the rules are not followed. Still, some companies would rather pay the fee and make a profit by selling apartments instead (Helagotland, 2018<sup>[37]</sup>). A few rural municipalities have embarked on projects to build small apartment buildings they will hold and rent to households who move into the area either on a short-term or longer-term basis. For instance, the local development company Virudden Utveckling AB in south-eastern Gotland owns and manages two apartment portfolios in När for rent. This includes 6 apartments in the former Parish hall and 16 ground floor apartments at Mickelgårds, a former warehouse (Virudden Utveckling, n.d.<sup>[38]</sup>). While this approach helps the community, it is not widespread or large enough to have a major impact on the island and does not address the problem in Visby where the mismatch is largest. Visby's rental market also offers limited competition as the two main private landlords own more than half of the town's buildings.

Gotland's economy is highly reliant on agriculture and tourism, with the public sector also playing a significant role (Chapter 1). Agriculture and tourism are both largely low- to moderate-wage sectors and are seasonal in nature with the summer months offering the largest number of jobs. This results in a seasonal peak in the demand for short-term housing to accommodate an influx of workers from the mainland and other places. Many of these jobs are in the immediate vicinity of Visby where the stock of affordable housing is most scarce, as this is where the demand for tourist housing is the greatest. In response, Visby hotels are already converting their meeting spaces into dormitories for their summer workers in an effort to attract enough workers to meet the summer tourism boom. Other businesses, such as restaurants and gift shops lack this possibility and face increasing difficulties in finding enough summer workers. With insufficient workers, businesses are unable to adequately serve customers. Away from Visby, some farms and small communities have similar problems, although the scale of the problem in these places is less.

Contributing to the housing mismatch on Gotland is the presence of a growing university and, more recently, the return of the military. The lack of availability of rental housing for incoming permanent residents is acute. In some cases, schools have had difficulty in hiring new teachers because there was no suitable place for them to rent. While it is yet unclear how large the revived Gotland regiment will be, it will clearly impact the demand for housing. Soldiers and their families will place additional demand on moderate-income housing. Further, an expanded military presence will have additional multiplier effects on housing demand because businesses that serve the military will need additional workers. Finally, the return of the military will further constrain the amount of land that can be converted from its current use to new housing, which will likely stimulate further increases in the cost of land for building new housing and reduce the incentive of private developers in building moderate-income housing.

University students are a significant factor in the population of Visby and most live in rental units off-campus as the university has no student housing, while increasing its student population. Many students live in seasonal homes that are rented for ten months of the year but are forced to move out in the summer, leaving no opportunity to stay for a summer job or an internship on the island. The lack of summer housing

for students and the general shortage of rental housing has two additional adverse effects. The first is that students might naturally be a source of summer workers but lack a place to live, leading to few staying on Gotland for the summer. Second, when they graduate, they tend to leave the island, even though Gotland is trying to attract younger workers. With poor prospects for finding permanent rental housing and a failure to develop a relationship with the island that could have come from summer work, it is not surprising that most graduates return to the mainland. Further, the COVID-19 pandemic has increased the number of people using their seasonal homes a larger part of the year, which has reduced the stock of homes for rent even further during parts of the year. As a first step to improve the situation, the regional government has recently signed an agreement with a real estate company to build 150 student apartments.

Given the dynamics of the economy on Gotland, there is likely to be continued growth in demand for second homes and short-stay tourism, as well as a need for workers for these activities. Evidence from similar places suggests that direct engagement by the public sector in providing a stable supply of affordable housing may be necessary to ensure that housing options exist for both seasonal homeowners as well as hospitality workers and university students.

Part of ensuring housing options is the drafting of municipal land use plans that can ensure an adequate supply of land for development. Municipalities have considerable authority to acquire land, zone land for specific uses and directly construct rental housing, whilst also facilitating sustainable development. Gotland faces another challenge in this regard as limited land is available around Visby, where pressures for housing are the strongest. This is because the Baltic Sea, the airport and land reserved by the military create barriers to development. Before the arrival of the military south of Visby, the region had expected a large block of land controlled by the military to become available for development, which would have relieved some of the pressure on housing availability. However, the return of the military to Gotland means this land will not be available and new land has to be found.

## The roles and influences of infrastructure and regional development

Infrastructure benefits individuals and society in two ways. The first is by providing useful services directly to people in the form of safe drinking water or roads on which to travel. This improves the quality of life of individuals and society. The second function is the provision of a platform or foundation for economic activity (Glaeser and Poterba, 2020<sup>[39]</sup>; Advisory Council on Economic Growth, 2016<sup>[40]</sup>). Transport infrastructure allows the physical integration of markets and ICT infrastructure further integrates markets by allowing rapid communication across space.

Historically, infrastructure has been thought of as the means for providing essential services, such as: water and sanitation systems; roads, bridges, canals, rail lines and ports that allow transportation to occur; or electricity distribution systems. For these elements, infrastructure is the means of conveying the product consumers want from its place of origin to its place of use. Consumers require electricity in their homes or business but delivering electricity requires the construction of a shared transmission and distribution system that serves all users and whose cost is a major factor in electricity prices. Over time the number and type of elements that are considered to be infrastructure have increased. Hospitals, schools, fire stations and emergency services are increasingly seen as part of (social) infrastructure. Most recently, broadband and all of the technology that supports it are considered to be another form of digital infrastructure. The broadening nature of what is considered to be infrastructure reflects both changes in technology and in the types of services society chooses to make generally available to its members. As the set of elements that comprise infrastructure expands, it has become increasingly important to integrate infrastructure planning into broader economic development strategies

The appropriate mix of infrastructure in a region depends on a number of factors including broad societal norms that condition the appropriate level of public services that all citizens should have access to: including, education, healthcare and emergency services. Infrastructure investments are generally seen



as: augmenting the competitiveness of a region by reducing the transportation costs of goods; reducing costs of production; improving basic infrastructure, such as water or electricity supply, to deliver more or better service; or, in the case of social infrastructure, enhancing the quality of labour, as a result of better education and training programmes. This is generally thought to be true for the region receiving the investments, even if the return to the nation would have been higher had the funds been spent in another region. However, under some circumstances, improving infrastructure in a region can lead to a worse local situation, for instance in the case where lower transport costs allow for a more efficient external producer to capture the local market. If the external competitor can take advantage of economies of scale or other cost savings, they may be able to undercut local producers once transport costs fall (McCann, 2013<sup>[41]</sup>). Hence, decisions on infrastructure investments need to be carefully evaluated.

### ***Infrastructure and islands: The absence of shared connections***

There are clear benefits if the infrastructure in one region can be connected to infrastructure in another. These include network effects but also potential resilience benefits if interconnections among regions allow a region to access another region's capacity when its own is unavailable. Similarly, there may also be cost savings if regions are interconnected, because instead of building enough capacity to meet their individual maximum needs, they may be able to use spare capacity in an adjoining region to meet peak demand in another region. While most small population regions have more limited connections and less internal capacity in terms of infrastructure, only islands are physically isolated in the sense they have no land border with another region, which precludes most forms of connectivity.

The lack of a land border for islands means that either interconnections are impossible, in the case of rail, roads and water systems, or far more expensive in the case of electricity, gas lines or fibre optic cable. For a small-island region, the low level of demand can limit either the region's ability to pay for a subsea interconnection or the willingness of a national government to subsidise the construction and maintenance costs of a connection. Islands do have the benefit of ship-based transport, which only requires infrastructure investments at the terminal ends of a journey and offers complete flexibility in terms of routes among ports. However, compared to road or rail transport, ship travel has high fixed costs and slow travel time, making it less valuable for frequent, shorter and smaller loads than rail or road.

On the upside, an island does not have to integrate its infrastructure into neighbouring jurisdictions, which provides more flexibility on the timing of infrastructure investments, the specific design and characteristics of infrastructure investments and the siting and other locational attributes of infrastructure investments. This can allow an island to tailor its infrastructure to suit its particular needs and develop it in the sequence that best suits its capabilities.

### ***Scale effects and infrastructure in rural areas: Opportunities for different and more effective approaches***

Typically, infrastructure projects are seen as being subject to scale economies: unit costs fall as capacity increases. This means that a single large project has lower costs than multiple costs in terms of the service it provides. Thus, a large water treatment facility has a lower cost per unit of treated water than a smaller one, or a large wind turbine has a lower cost per unit of power generated than a smaller one. This is seen as an argument for constructing a small number of large providers rather than more numerous small ones. However, the focus on cost at the facility ignores the important associated cost of linking the facility to its ultimate users. For a wind turbine, this is the cost of grid connections to the farm or home. For a water treatment facility, it is the cost of wastewater pipes from the customers to the plant.

Where the number of customers is large and concentrated in a small area, the additional connectivity cost of a large project can be small relative to the cost savings from economies of scale. In addition, large projects can benefit from stronger network effects if they allow a large number of users to be connected.

In the case of an electrical power system, a larger group of users may provide a more stable load profile that allows the generating facility to operate at its optimum level. Similarly, for a transport network, having more nodes provides a greater of interconnected places and a wider range of potential routes.

However, in rural areas, where there is a small population to be served and the population is spread over a large area, the costs of connectivity can be very large and overwhelm any benefits from economies of scale. This means that, for small-scale infrastructure projects, higher costs at the plant may be a better solution once the full cost is considered. For example, a large fire station can house a variety of fire trucks and specialised staff, which in turn provides better fire protection. But if the fire occurs a long way from the station, the benefits of better firefighting capability can be overwhelmed by the delay in arriving. Consequently, a network of small volunteer fire stations spread over the area may be a better solution, even though they have less capability.

The trade-off between scale and connectivity costs is particularly important when a major shift in infrastructure is being contemplated, which can make any existing connections less useful. Historically, the electrical grid was optimised for a small number of power generation stations that served a large area. Where fossil fuels were used, these power stations were constructed near large load centres to minimise transmission and distribution costs. With the growth of renewables, there are fewer economies of scale and generation has to take place where wind and solar resources are strongest. This is requiring a large realignment of transmission grids to link generation to end users and to provide redundancy when renewable energy sources are interrupted.

Similarly, as digital infrastructure emerged, the existing network of telephone cables quickly became inadequate and fibre optic cable was required to make full use of the Internet. In urban areas, the transition was fairly rapid because there were both a large number of users and in close physical proximity. In rural areas, cable had to be laid over long distances with no customers and, even in settled areas, the number of users in a community was too small to meet the profitability targets of most private companies providing the service.

The same type of problem exists for public services, such as education and healthcare. For both schools and hospitals, economies of scale exist in the form of lower unit costs or better service capability. These scale effects argue for a small number of large facilities and this works well in large urban areas. However, in low-density rural areas where many small communities are spread over a large area with limited transportation infrastructure, the travel costs associated with reaching a large regional school or hospital are high. These can be built into the education of health budget in the form of school buses or ambulances, or they can be shifted to families if they are responsible for getting their child to school or an ill person to the hospital. In either case, the public benefits of the larger facility are considerably smaller once connectivity costs are incorporated.

While Gotland is administered as a single municipality, it consists of two distinct entities in terms of service delivery. Visby is large and compact enough to satisfy some scale effects for infrastructure provision but the island's average settlements are very small and widely dispersed. Improving connectivity between Visby and smaller settlements can enable people in smaller communities to benefit from "better facilities" in Visby and augment the level of use of these facilities. This is an argument for improving the road network and for investments in public transit, but not for expanding the conventional bus service.

These distinct differences suggest that the regional/municipal government should address local infrastructure provision in different ways. This is already the case for fire protection, where in Visby a professional fire service exists, while volunteer fire stations are relied upon in other parts of Gotland. But as renewable energy becomes more common and ongoing water shortages must be addressed, the opportunities for new infrastructure investments will differ between Visby and other settlements. Visby will continue to require a centralised water supply and wastewater treatment system due to its population size and high density. On the rest of the island, small settlements with growth potential already face limits on

their available water and sewage treatment capacity. If new housing is to be constructed to address the current shortages, more water and sewage capacity will first be required.

One option is to rely on centralised systems but this will involve major investments in trunk lines to move water and sewage to and from communities and facilities. Alternatively, small places can rely on solutions that do not scale well and use different technologies to meet their water and wastewater needs. Small community water supply needs can be met from local wells or reservoirs coupled with a local treatment facility. Similarly, there are a number of technologies for treating wastewater that rely on a combination of lagoons and structured wetlands that can provide fully treated water. This water then has the potential to augment the irrigation needs of nearby farms. Several exist on Gotland, for instance in Roma.

Adopting this broader perspective on providing infrastructure will require a shift in focus away from the best available technology and the lowest cost of treatment to one that focuses on appropriate technology and reducing the full cost of delivering the service. In addition, smaller-scale technologies can be more sustainable in the sense that they are able to employ processes that make use of nature instead of chemical treatment. A clear challenge is meeting regulatory standards that typically focus on large-scale facilities and are not flexible enough to allow alternative processes that deliver the same outcomes. In addition, funding for infrastructure often comes, at least in part, from national or EU sources and these too may not be flexible enough to deal with uncommon approaches.

## Infrastructure improvement opportunities for Gotland

Gotland has a generally well-developed infrastructure but, as the economy evolves, local society changes and adapting to the effects of climate change becomes more critical; important modifications to the existing stock will be required. As noted in the introduction, Gotland faces three major challenges that will shape both its future development path and its specific infrastructure needs. These are: managing the effects of climate change, responding to either the closure or the upgrading of the local cement plant, and adjusting to the return of the military to a more insecure Baltic Sea environment.

Five more specific infrastructure considerations that address recognised needs on Gotland should be reflected on in the context of various scenarios for the three challenges. Most of these involve investments that have already been addressed by the region in some form in one or more of its development plans. They are:

- Assuring sufficient energy supply, for instance by replacing the current submarine cable that supplies the vast majority of the electricity for the island but which is nearing the end of its planned life as well as adapting the various components of infrastructure to increase the use of renewable electricity and other “non-fossil fuels”, to improve sustainability and mitigate climate effects.
- Augmenting the supply of water to deal with increasing seasonal shortages in summer that are adversely affecting development.
- Expanding transport links, particularly ferries, to improve access to and from other parts of the Baltic region.
- Upgrading to 5G to launch connected technologies and making the most of teleworking opportunities.
- Exploring ways to increase the supply of the housing stock for permanent residential use on the island along with support schemes to address the chronic shortage of rental housing.

The next section is divided into two parallel scenarios to consider regarding the future existence of the local cement plant. It looks at how existence or non-existence of the cement plant is significantly affecting choices as regards aspects of climate change mitigation or relating infrastructure on Gotland. This reflects the reality that one specific development path may require a different set of infrastructure from another.

Aside from that, other investment priorities are largely unchanged by the fate of the local cement plant but may be altered by other external factors including climate change or military presence. The first scenario assumes that the local cement plant remains in operation and is able to meet its commitment to eliminate the vast majority of GHG emissions by developing an effective carbon capture technology. Two important consequences for Gotland's infrastructure follow on from this. The first is that a new submarine electrical cable to the mainland will be required and it will have to be considerably larger in capacity than the current cable to provide the additional electricity to operate the local cement plant carbon capture process. A second consequence is that the local cement plant will continue to require a considerable amount of water storage capacity for its own operations and the limestone quarries used by the local cement plant will not be available for water storage for other uses. This means that additional methods for augmenting water storage will be required.

Conversely, if the local cement plant closes in a few years, which is the second scenario, there will be a significant decrease in the electricity requirements for Gotland from current levels. While the current cable is reaching the end of its planned life, with a smaller need for electricity, there may be less interest by the national government in replacing the cable. Expanding alternative sources of electricity, particularly wind and solar, may be seen as a more cost-effective option. And, if the local cement plant closes, its existing quarries could be repurposed to serve as reservoirs for the island and this would provide a large increase in water storage capacity, especially if they were modified to reduce leakage and evaporation.

### ***Gotland with the cement plant***

The industrial sector is the largest user of electricity on the island, corresponding to approximately 0.4 terawatt hours (TWh). In the event of possible electrification of the cement plant processes and having the planned carbon capture and sequestration process in place, electricity use would increase significantly and lead to a large increase in total power demand. Power consumption is estimated to increase by approximately 260 MW according to the feasibility study (Wilhemsson et al., 2018<sup>[42]</sup>). This can be compared with Gotland's normal total power consumption of around 120-130 MW. In order to handle this, an increased transmission capacity from the mainland is most likely required. Larger electricity production on the island together with energy storage can also be part of the solution.

The new submarine cable significantly decreases the need for on-island electricity generation but also offers the potential for exporting renewable energy. The new cable should have the capacity to meet all current and future electricity needs for the island. While there is already good wind power and the best solar power infrastructure in place compared to other places in Sweden, expanding both of these generation methods involves challenges. The onshore wind is located in coastal areas but these coasts are highly valued locations for increasingly expensive summer homes, which creates a significant conflict of interest. Similarly, larger-scale solar panel locations must also compete for a relatively scarce land base that also has competing uses. While off-shore wind may be possible, many of the better locations are also home to a significant number of birds that are protected under an EU directive.

Given the cable, it therefore seems likely that there will be less local support for significant expansion of renewable electricity than there would be under the second scenario where it becomes the only alternative. While renewable energy producers may potentially have the opportunity to export excess local power to the mainland, the viability of exports would crucially depend on the charge for accessing the transmission line and the cost of production relative to those of mainland renewable energy producers.

Under any scenario, Gotland will have to make significant investments in upgrading the local electricity distribution system as part of the shift away from fossil fuels. Investments will be required to realise this.

### **Gotland without the cement plant**

If the local cement plant closes, the underlying economic rationale for a new submarine cable becomes more difficult. Electricity demand on Gotland drops significantly and becomes less stable with greater daily and seasonal fluctuations. With a far smaller base load and a relatively higher peak load, the payback period for the cable is extended. This could lead to a search for alternative ways of providing electricity on the island. While there is already a good quantity of wind power and some solar power in place, expanding both of these generation methods will become more important even though they are problematic. Without the cable, finding ways to site new renewable energy facilities will be a major challenge that will have to be addressed and managed by the regional government.

Community ownership and participation in benefits and decision-making support the deployment of renewable energy. Across many OECD countries, there has been resistance to the siting of renewable energy developments in rural areas. Reasons for these are varied and include biodiversity loss, competition for land use (such as agriculture) as well as visual impact. Loss of view or increased noise might reduce property values or opportunities for the tourism industry (Phillips, 2019<sup>[43]</sup>; Poggi, Firmino and Amado, 2018<sup>[44]</sup>). To address these issues, two aspects are important: i) procedural fairness, i.e. the ways in which communities are involved in the decision-making about renewable energy development leading to implementation; ii) distributional fairness, i.e. fairness in the benefits communities receive from installation as well costs and risks (González et al., 2016<sup>[45]</sup>).

Trust has been highlighted as one of the most important factors needed to gain the acceptance of renewable energy development by communities (González et al., 2016<sup>[45]</sup>). Trust can be increased if residents feel the information is handled with transparency and accuracy throughout all stages of the project and their concerns are reflected in prospected operations. Communities that perceive that decisions are made to benefit all, as opposed to only a few also display more trust. Options to improve trust include setting in place inclusive and sufficient mechanisms for dialogue and consultation as well as ensuring concerns are taken into account in decision-making (Moffat and Zhang, 2014<sup>[46]</sup>). This trust, however, is often lacking because of unbalanced power relations, limited community capacity and funds (rural communities often have small administrations and tight budgets in comparison to large energy companies) and missing guidance or legal frameworks.

Regional and national policy makers are responsible for clarifying planning and permission processes and acting as mediators. The state of North Rhine-Westphalia, Germany, for instance, has set up state wind energy dialogues and mediation on renewable energy projects at the local level. The process includes information, consultation and expert advice as well as round table discussions and an interactive website with information on planning and permission processes, conducted by an independent agency to ensure neutrality and unbiased support. Mediations include targeted problem-solving within municipalities and help negotiate positions, ideas and interests directly. Other German state governments have established similar platforms. Between them, they exchange ideas, latest developments and experiences (The Climate Group, 2016<sup>[47]</sup>).

Furthermore, developing renewable energy projects to the advantage of rural development is not straightforward. Evidence is mixed on whether construction, operation and maintenance activities from renewable energy projects actually support long-term rural development (Clausen and Rudolph, 2020<sup>[48]</sup>; OECD, 2012<sup>[49]</sup>). While there is an indication that renewable energy creates jobs, for instance from the operation and maintenance of equipment, studies suggest that the largest potential for employment is rather indirect and can develop along the value chains, through innovation or by making other production activities possible, including food processing, storage and transport (European Court of Auditors, 2018<sup>[50]</sup>; OECD, 2012<sup>[49]</sup>). Overall key factors for successfully linking renewable energy to rural development are summarised in Box 2.5.

### Box 2.5. Key factors for successfully linking renewable energy to rural development in OECD countries

- Embed energy strategies in the local economic development strategy so that they reflect local potential and needs. Environmental and energy security arguments tend to be the main impetus for promoting renewable energy and the local economic benefits tend to get overlooked.
- Integrate renewable energy within larger supply chains in rural economies, such as agriculture, forestry, traditional manufacturing and green tourism.
- Limit subsidies in both scope and duration, and only use them to encourage renewable energy projects that are close to being viable on the market.
- Avoid imposing types of renewable energy on areas that are not suited to them. For example, wind power is only appropriate in certain places.
- Focus on relatively mature technologies such as heat from biomass and wind.
- Create an integrated energy system based on small grids able to support manufacturing activities. Policy should take into account backstop technologies for power sources that are intermittent, such as wind and solar. In several regions, the capacity to deploy renewable energy is constrained by grid limitations yet there are no incentives to improve transmission infrastructure.
- Recognise that renewable energy competes with other sectors for inputs, particularly land.
- Assess potential projects using investment criteria and not on the basis of short-term subsidy levels.
- Ensure local social acceptance by ensuring clear benefits to local communities and engaging them in the process: this is crucial as local opposition can slow construction and may make introducing future renewable energy projects even more difficult.

Source: OECD (2012<sup>[49]</sup>), *Linking Renewable Energy to Rural Development*, <https://dx.doi.org/10.1787/9789264180444-en>.

On Gotland, because renewable energy projects are intermittent power producers, investments in storage technologies will be required, as will investments in backup generation. Other places that have weak or non-existent grid connections face the same challenges and some are trying to make themselves testbeds for alternative electricity production systems. For example, the island of Bornholm has a strategy of acting as a demonstration site for sustainable energy systems (Nordregio, 2021<sup>[51]</sup>). Similarly, several of the Scottish islands are developing innovative ways to expand the use of renewable energy (Dickie, 2022<sup>[52]</sup>). Gotland has some advantages in this process of adaptation in that it is a relatively small island with a predictable demand pattern for electricity and a high cost for conventional electricity transmission systems. This could make it a desirable location for testing hybrid electricity generation systems at a larger than pilot scale.

Gotland will also have to make significant investments in upgrading the local electricity distribution system as part of the shift away from fossil fuels. Investments will be required to provide a system of charging stations for electric vehicles, both for residents and visitors. While, new electric cars typically offer ranges of 400 km or higher, the lack of charging stations can pose barriers to rapid elective vehicle adoption. Most governments continue to provide financial incentives to increase demand rather than invest in charging infrastructure (ITF, 2019<sup>[53]</sup>). In rural regions, the dispersed nature of residences and infrastructure requires recharge points to be placed strategically, for instance at supermarkets and schools. Governments also need to consider increasing demands for total electricity with increasing penetration of elective vehicles, which calls for more co-ordinated charging and local reinforcements of grids. A leading example of

investments in electric vehicle infrastructure can be found in southern Alberta, Canada. In the province, civil society groups, local businesses and local and regional governments collectively invest in electric vehicle charging infrastructure to facilitate emissions reductions, economic development and tourism. The project has installed 22 charging stations, powered using renewable energy sourced from the region (peakstoprairies, 2019<sup>[54]</sup>).

### **Potentials to augment water supply**

Gotland currently faces seasonal water shortages that are projected to worsen as climate change effects strengthen and demand for water increases in the summer months due to an increasing seasonal population. Water-conserving technologies for firms and households are increasingly common and can reduce the demand for water and are increasingly required by EU and Swedish policy; they can be especially useful on Gotland because the water supply cannot be augmented from external sources.

Currently, water retention efforts on the island are not systematic and offer considerable opportunities to augment the summer water supply. It is possible to improve storage capacity to retain more water from other seasons and modify demands. Larger reservoirs may be a useful option for storing water and it may be possible to work with the local cement plant to develop new reservoirs as part of the company's quarrying process. Infiltration rates could be improved on farms by fully adopting cultivation practices that leave post-harvest crop residues in place. Farms could also restore areas that were once marshy to wetland status to further enhance retention, as is noted in *Our Gotland 2040*. On-farm ponds are commonly used but could also be increased in number and capacity. If climate change effects increase in severity, agriculture may require additional water for supplemental irrigation and maintaining livestock. The Green Centre is well positioned to act as a vehicle to disseminate improved farming practices to producers and as a site for demonstration projects that can help encourage farm management practices that increase water retention. Similarly, it should be possible for even small communities to increase the use of reservoirs to capture more winter precipitation. While these water supplies may not be a good source of potable water, they can be used for other types of water needs.

Desalination remains an expensive technology but the costs are falling and, in some cases, may be a means of supplementing local water supplies. Since the Baltic Sea is only moderately brackish, desalination may be a more interesting option for Gotland than in other places. The small community of Herrvik has a small pilot project that combines a local solar energy site with a desalination plant linked to the local water storage facility (Region Gotland, 2017<sup>[55]</sup>). The desalination plant uses electricity produced in non-peak periods to treat water and does not operate in peak electricity demand times. This type of project may be most applicable in more remote communities where the cost of extending water lines may be high enough to make creating a local supply more attractive.

Recycling wastewater is encouraged in the EU Water Framework Directive and has considerable potential on Gotland. For example, the community of Ostergarn recently invested in constructing a local wastewater treatment facility that supplies two storage lagoons that are used by a nearby farm for irrigation purposes. The treatment facility removed new construction constraints that allowed the community to add more housing, which improved its development prospects and created a new source of local government income. The treated water provides the farm with needed irrigation water that allows more consistent crop production. A clear opportunity is in Visby where the existing wastewater treatment plant now pipes its treated water into the Baltic Sea. Using this water for other purposes would require additional treatment steps and a reconfiguration of the treatment facility to pipe water inland which is costly, but doing so presents an opportunity to improve sustainability.

Another potential approach could be a greater effort to recharge existing aquifers. During winter months precipitation on Gotland exceeds water demand but a large amount of this water now flows into the Baltic Sea. Increasing the current natural rate of infiltration can be accomplished by: altering field management practices to leave more crop residue after harvest and adopting no-till or minimal till

cultivation; reintroducing wetlands to retain water; and increasing the size of buffer strips along existing streams and ditches, and other farm management methods. Wooded areas slow the rate of runoff and allow greater infiltration as well as providing wildlife habitat and environmental benefits. In addition, there is also the possibility of direct recharge of aquifers (US EPA, 2022<sup>[56]</sup>). Recharge can provide an alternative to constructing new water storage facilities by ensuring that existing aquifers are brought to a high level of storage before peak demand begins. Currently, the agricultural sector only uses on-farm surface water storage for irrigation. However, climate change and the declining role of the dairy sector suggest that an expanded crop production sector may require better access to irrigation water in the future. If Gotland aspires to a higher-value agricultural sector, including increased production of fruits and vegetables, it will be necessary to ensure that additional water for irrigation is available.

Because Gotland is a sparsely populated island with a large number of dispersed small communities, the region should explore finding distributed solutions tailored to local municipality conditions as a way to provide basic infrastructure instead of the more common centralised system. Visby is the only community on the island where the central system may be desirable and, even in Visby, implementation may be challenging because so much of the city is difficult to serve. Local community groups are already demonstrating the power of a distributed approach, for example, where one group is adding floating solar panels to a previously constructed wastewater treatment lagoon that already serves as a source of irrigation water or another community group that is powering a small-scale desalination plant with photovoltaic panels. Finally, the area around Storsudret is undertaking a circular water solution project with EU findings that combines rainwater harvesting, membrane treatment of wastewater and desalination (Smart City Sweden, 2022<sup>[21]</sup>).

All of the options discussed for enhancing and stabilising the water supply on Gotland under the alternative where the local cement plant remains in operation continue to be applicable if the local cement plant closes, and these options will not be repeated. However, the cement plant currently operates a large reservoir in Slite for its own use and the currently active quarries that provide limestone would cease operation if the cement plant closes. This would create a large amount of water storage capacity that could be used to meet local demands and potentially moved to other parts of the island.

To date, these innovative infrastructure solutions have been mainly funded with EU grants but the actions community organisations are taking are actually in areas that are a core responsibility of the regional government. Even a small amount of support from the regional government might stimulate significantly more community effort to identify locally appropriate and innovative infrastructure solutions. If Gotland can develop a reasonable number of innovative solutions to small community infrastructure problems, it may be able to create a niche market by providing small-scale technologies to other places with similar needs. This could create opportunities for consulting services and perhaps small-scale manufacturing firms that provide the means to couple several off-the-shelf technologies into a new functional form.

### ***Improving external transport links***

The main means for moving people and materials between Gotland and the mainland is the ferry system. Currently, Gotland has very good connections to the Stockholm region through the port of Nynashamn with modern ships that carry both people and vehicles. There are also connections to the southern coast of Sweden at the port of Oskarshamn and less frequent connections at the port of Vastervik. There is also a new ferry service between Rostock, Germany, and Nynashamn, with interest in including Visby as a stop for some of the trips.

More direct connections to Visby are important if Gotland is to expand its attractiveness to international tourists, as are finding ways to reduce the complexity of transfers. While the existing ferries are relatively fast for ships that carry people and vehicles, they are somewhat inconvenient for passengers, particularly tourists. Getting to Nynashamn from Stockholm involves either a bus or train trip from Stockholm Central Station, which is both large and challenging to navigate. Adding small quick passenger-only ferries in peak



travel periods that operate from the Stockholm Värtahamnen ferry terminal could expand the number of trips by international visitors and reduce commuting time for business travel. This connection would also facilitate transfers to and from the main Baltic ferry system. Yet, the long and dense archipelago outside Värtahamnen is a challenge and might increase travel times. In addition, there may be opportunities for direct ferry connections to Gdansk, Poland, or Riga, Latvia, if there is the belief that a sufficient volume of traffic would sustain the connection. Both of these cities would offer the benefit of providing good internal road connections to places further south and east.

Air links to Stockholm are already frequent and the number of flights expands to accommodate seasonal peaks. Other domestic connections are to Gothenburg and Malmö, Sweden. Currently, the only non-Swedish scheduled flight is to Helsinki, Finland, which provides connections to Finnair routes. While flying is a relatively expensive travel option, it is far quicker than ship travel and, because Gotland is an island, other travel methods are not available. This suggests that enhancing air and ferry connections is crucial for improving connectivity and their importance may justify some form of subsidy.

Diversifying connectivity will involve developing ferry and/or air routes to other places. This is a more difficult option because private ferry and air operators would question the viability of new routes and require significant guarantees of sufficient use. Other regions have undertaken similar efforts, such as Umeå in Sweden and Oulu in Finland, which jointly supported direct air flights during an initial period to persuade the carrier to offer the service. For Gotland to break into new economic activities, it may be necessary to identify places and functions that it can serve and then ensure that transport links to those places are adequate to support the new trade relationships. Initially, this may require subsidies or some other form of revenue guarantee to transport providers to ensure they commit to a long enough service period to allow a trade to develop.

### ***Integrating infrastructure components***

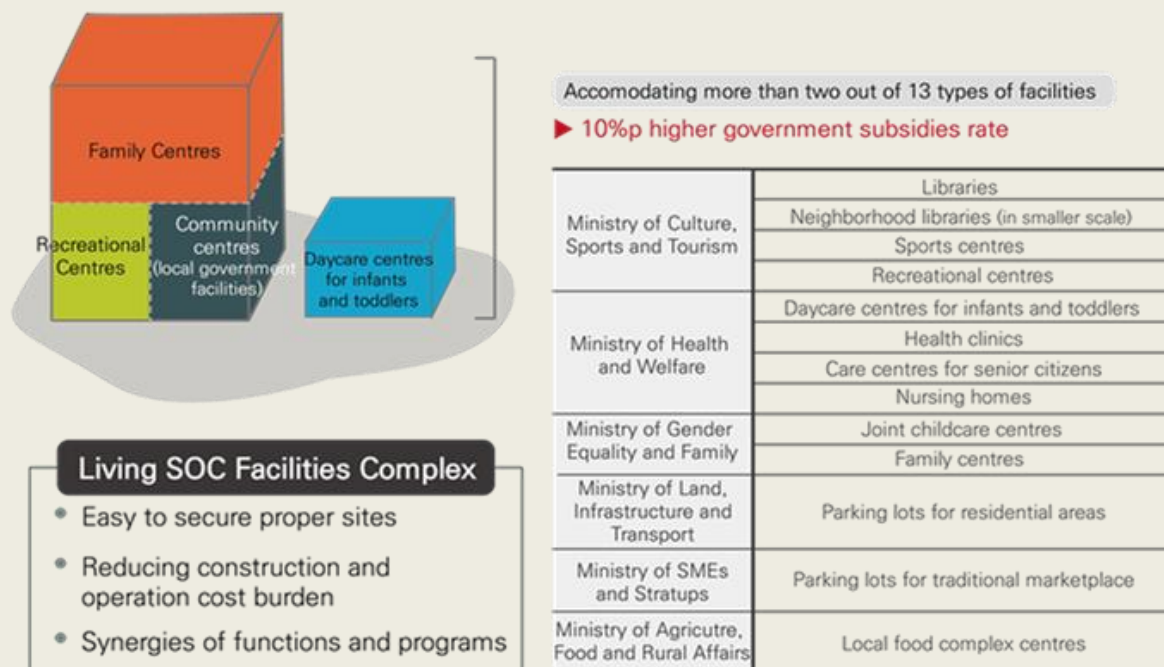
Gotland provides a useful demonstration suite for identifying ways to integrate different elements of infrastructure so that they work more efficiently. One existing example is the interconnected wind turbine and desalination plant in the community of Herrvik. This type of small-scale project is effective in many rural areas of OECD countries where the cost of installing and maintaining the transmission wires or water distribution pipes over long distances from a large central provider makes installing distributed systems even though they may have relatively high local production costs a better solution. Once again, because it is a somewhat remote island with high interconnection costs, self-supply of a new technology that is complementary to wind and solar power could be viable on Gotland long before it is cost-competitive on the mainland.

Other examples of integrated forms of infrastructure already exist on the island in rural communities that have co-located a number of public and private services in a common location as a way to reduce costs and facilitate easier access by users (Box 2.6). Similarly, small-scale wastewater treatment plants in rural municipalities can be directly connected to nearby farms that can use the water for irrigation. Assured access to a supply of irrigation water will allow these farms to shift to producing higher-value crops, such as fruit and vegetables that can augment an already thriving focus on high-value farm products. Integration of different modes is possible for public transport. For remote places, “on-demand” public transport can provide a way of connecting people in smaller municipalities to points where regular bus service is available. All of these integration opportunities are more viable on Gotland than in many other regions because the island already has an excellent fibre optic network that provides Internet access to all parishes. Integration of various types of infrastructure can only take place where the Internet provides the required connectivity.

### Box 2.6. Korea's community infrastructure combination project

In August 2018, the Korean government put an emphasis on making an active investment in “community infrastructure”, encompassing childcare, medical, welfare, educational, cultural and sports-related facilities and services. To support the policy, the government increased budget allocation for the development of community infrastructure and established a policy consultative body. The combination of community infrastructure has been promoted by newly constructing (or remodelling) multiple facilities or amenities in one building or more in a connected form, which enables integrated service delivery. Through this combined approach, Korea aims to reinforce community services through a set of infrastructure that is essential for everyday activities to the level of matching or exceeding what is prescribed in its national minimum standards. Under the project, an integrated mix of spaces is provided to accommodate more than 2 out of 13 types of facilities, outlined in the figure below, with the ministries in charge.

Figure 2.2. Korea's community infrastructure combination project



Thanks to the combination, it has become easier to secure sites for community infrastructure, less costly to construct and operate those facilities, and more convenient to link different functions and programmes. This joint approach is incentivised with a higher percentage of government subsidies. For example, 50% of the total cost is subsidised by the central government for a single facility but the rate becomes higher to 60% for combined facilities. Under this community infrastructure combination approach, the central government plans to invest a total of KRW 30 trillion, or approximately EUR 22 billion, over the period of 2020-22. The entire project cost can be as large as KRW 48 trillion, or EUR 35.2 billion if local government expenditure is considered.

Source: MOLIT (2021<sup>[57]</sup>), “OECD RDPC Meeting”, 5-6 May 2021, Ministry of Land, Infrastructure and Transport.

### ***Increasing the supply of the housing stock for permanent residential use***

On Gotland, seasonal homes now dominate new housing since they are the most profitable form of new construction and the share of moderate-income housing, particularly rental housing, is not on par with population increase. This makes it difficult for lower- or mid- income households to find an affordable<sup>2</sup> place to live. One reason for this is that building homes is increasingly expensive. An inelastic housing supply, resulting from a scarcity of developable land or regulatory policies that make it harder and more costly to build, can make housing less affordable. Also, rising construction costs have contributed to declining housing affordability in many countries. In the OECD-EU area, construction costs for new residential buildings increased by over 70% between 2000 and 2019, of which labour costs alone increased by more than 110% (OECD, 2021<sup>[58]</sup>).

The high demand for seasonal homes combined with relatively high new construction costs and restrictions on the amount of land that is available for new development provides little incentive for markets to provide new moderate-income housing for sale and even less so for rent. This is because, in Sweden, rents are controlled through yearly negotiations between house owners and the local "union" that represents the people who are renting. They agree on a maximum rental cost per square metre per year. Increased building prices make it very difficult for developers to build within the cost limit for the set rental income.

Current regional efforts by the regional government to deal with shortages, to link building permits for developers constructing new higher-priced homes with the construction of moderate price/rental homes, have met with little success, perhaps because the scale of new housing projects on Gotland is small and profit margins are too low. Moreover, as the university expands and as Gotland tries to increase the number of visitors in the summer – a season which requires more seasonal workers – the need for short-term housing is increasing.

Furthermore, housing challenges can be distinguished as follows on Gotland:

- In Visby, the increasing numbers of university students during the semester in combination with more people who chose to occupy their seasonal homes for a larger part of the year (increased even more with the COVID-19 pandemic) has reduced the number of homes for rent. In summer, the short-term rental market is even tighter as an influx of seasonal workers for the hospitality sector increases demand just as owners of seasonal homes remove them from the rental market.
- In rural parishes near the coast, the existing housing stock is steadily being converted to seasonal housing and most new construction is for seasonal homes. The result is a shortage of accommodation for people who would accept employment in rural areas if they could find a place to live, either to rent or to buy at a medium-income rate. This hinders efforts to attract new teachers, nurses and other people with needed skills who have to be recruited from places off the island.

Several opportunities exist for public sector involvement to address the housing challenge:

- The first focuses on providing dedicated short-term housing units for use by students in the school season and by seasonal workers in the summer. For the university to expand and further contribute to the regional economy, more student housing will be required (probably also acceding existing plans for additional 150 student apartments). Most of this housing will likely not be occupied in the summer season. A partnership between the university, the regional government and a developer could construct residences that serve both students and summer workers. In the summer, when the student population declines, these units could be made available for summer workers. One approach to this could be for the region to provide land for the project under a long-term lease and collect rental income, with the developer constructing the building and operating it under guidelines agreed to by the university and the region. A second approach would have the foundation Uppsala Akademiförvaltning, which owns the land that the university is renting, providing land and operating the student housing.

- The second opportunity is changing the zoning regulations on Gotland. Relaxing zoning can be helpful to allow for more apartments to be built where space is limited. It has been shown several times that zoning restrictions, such as limits on the height and density of buildings, are generally associated with increases in the cost of living (Glaeser and Gyourko, 2018<sup>[59]</sup>; Brueckner and Sridhar, 2012<sup>[60]</sup>; Chengri, 2013<sup>[61]</sup>). Specifically, loosening height restrictions can be an opportunity for Gotland to make more of the land. The drawback to this is that certain aesthetic amenities of an area might considerably change. Like land use regulations, building height restrictions have costs and benefits. It is important to assess if regulatory costs outweigh the benefits. Spatial development should always be organised in ways that minimise costs and negative impacts of regulations.

Other incentives for building can relate to a possible tax deduction for developers if they agree to provide a certain type of housing. One example of such a programme in the United States is the Low-Income Housing Tax Credit (LIHTC). Established in 1986, the programme has become an integral component of federal housing policy designed to ensure affordable housing. Between 1987-2008, it covered 21% of all multifamily developments. In the programme, federal tax credits are allocated to states on the basis of population. These credits are then granted by state authorities to developers of qualified projects. Developers then sell these credits to investors to raise equity capital for their projects and reduce the amount of capital they would otherwise have to borrow. Investors receive a dollar-for-dollar credit against their federal tax obligation for 10 years, on the condition that the property continues to comply with all programme guidelines (Rebecca and McQuade, 2019<sup>[62]</sup>). While Gotland would need to rely on the national Swedish government to provide a tax credit to incentivise a specific type of housing, this might be a consideration worth taking.

Another option relates to increasing the incentives to construct moderate-income or rental housing by requiring some units in larger developments to be made available for rent or at a lower price for receiving development permission. The current fine for not abiding by building rules seems to be too low to make comply. Consequently, Region Gotland could think about increasing the fine, while making sure it does not disincentive building at all. This approach however is likely to only be more successful when a single development produces a large number of housing units, which allows the costs of subsidising the moderately priced units to be spread across a large number of homes. An alternative to this is that the region could zone some of the land it owns for development and lease it for housing development. In cases where developers do not build for rent or at a lower price despite having agreed to do so the lease for the land would be increased. A challenge to this is that Region Gotland only owns about 1.5% of the island's total area (47 million m<sup>2</sup> in total).

Lastly, there are different needs across Gotland, while no rural community on Gotland needs a large number of units, most settlements need some. Some communities are already building small apartment units for this purpose as they see it as essential to be able to attract new teachers, replace retiring ones or attract other people with needed skills. For this to happen on a larger scale, the region needs to strategically support these development projects. If priced appropriately, the apartments can be self-financing so they serve both a public purpose and augment local revenue. To support this financially, Gotland could develop a rural housing fund specifically targeted at small communities. A similar project is currently being developed by the Scottish Government.

As part of the Scottish Government's Housing to 2040 plan, the island of Colonsay has started to build affordable housing. Colonsay is a community with a need for affordable homes and homes for key workers and essential services. The majority of the land is in private ownership and 42% of homes are second homes or holiday lets. Colonsay Community Development Company (CCDC) was successful in obtaining funding from the Scottish Land Fund to buy a site in the village of Scalasaig. Working with the Communities Housing Trust to deliver affordable homes, grant funding of GBP 1 205 888 has been awarded through the Scottish Government's Rural and Islands Housing Fund (RIHF) for the development of 6 affordable homes, 4 for social rent and 2 for low-cost ownership. This is part of a larger project involving a local employer who

has worked in partnership with the CCDC and contributed GBP 1.2 million to deliver infrastructure works and a further 3 homes for rent for its workers. The CCDC will also provide three serviced plots to deliver affordable self-build opportunities on the island. In addition, it has secured grant funding of GBP 335 000 from the Scottish Government's Regeneration Capital Grant Fund to develop business units to support economic development.

### Box 2.7. Housing supply in remote, rural and island areas in Scotland

The Scottish Government's Housing to 2040 plan seeks to take action to ensure that rural and island communities have access to high quality affordable and market housing, which is planned alongside the infrastructure that helps people live, work and thrive. The plan combines a number of actions and commitments. These include:

- Delivering a further 110 000 energy-efficient, **affordable homes** by 2032, at least 70% of which will be in the social rented sector and 10% in remote, rural and island communities.
- Developing a **Remote, Rural and Island Housing Action Plan** to meet the housing needs of these communities and help to retain and attract people.
- Continuing the **Rural and Island Housing Fund**, making GBP 30 million available over the lifetime of the current parliament.
- Introducing a new **Rented Sector Strategy** to improve accessibility, affordability and standards and ensure that all new homes achieve zero emissions.
- Supporting the better use of existing housing, including the development of a new fund for local authorities to apply to in order to bring **empty homes** back into use.
- Taking steps to regulate **short-term lets** to empower local authorities to strike a better balance between local housing needs and the concerns of residents with that of the tourism industry.
- Giving local authorities the powers they need to manage **second homes**, where this is a problem in their area.
- Enabling new **Permitted Development Rights** for the conversion of agricultural buildings to residential and commercial uses. These came into force on 1 April 2021 and will help support the provision of new homes in rural areas and help succession planning on farms.
- Working with Community Land Scotland and others to bring forward more **land for housing** in rural areas.
- Adopting an **infrastructure-first approach** to neighbourhood planning to encourage more homes in areas where there is, for example, already capacity in schools or health services. This also means including blue-green infrastructure.
- Through the new NPF4 and the development planning system, identifying a greater **choice of land** for community-led and self-provided housing, affordable housing and new build homes.
- Considering how the **concept of 20-minute neighbourhoods** in rural and island communities could apply, delivering homes in existing communities with access to the services.

Source: Convention of the Highlands and Islands (2021<sup>[63]</sup>), "Housing supply in remote, rural and island areas", Member's Paper, Convention of the Highlands and Islands, 25 October 2021.

### ***Upgrading to 5G to launch connected technologies and making the most of teleworking opportunities***

Providing broadband access across all of a country's territory is now a widely adopted national policy within OECD countries. Gotland embraced this philosophy earlier than many regions and established a strong fibre optic network across the island. Increasingly the main advances in digital communication and technology are taking place in the wireless domain. Autonomous farming equipment, smart home systems and various connected devices are the most evident examples of this change. Because Gotland invested early in an extensive fibre optic network, it already has an important part of the needed digital infrastructure to complete the rollout to 5G wireless.

Upgrading to 5G constitutes an opportunity for Gotland, allowing the region to advance faster than other regions on connected technologies. Many rural places are not set up for this development but on Gotland, it constitutes a development opportunity, allowing the region to position itself as a testbed for emerging technologies in connected technologies. Advancing on connected technologies can also help with other infrastructure challenges such as water shortages. For instance, Smart Water Management systems can use agri-tech solutions to allow for climate-smart farming practices. Modern technologies ensure minimal water use to irrigate crops and reduce the potential leaching and overuse of groundwater. Furthermore, where different infrastructure elements are connected, such as a renewable power sources that intermittently provide power to a water desalinisation plant when electricity demand is low, high-speed digital connections are vital for efficient operations.

Furthermore, the value of strong wireless digital infrastructure across the island should not be underestimated as a factor that is important to tourists, especially if the technology is used to provide updated traffic information and smart public transport systems that rely on a mobile phone application to provide an initial portal and subsequent information to the user and transport provider.

Given the integrated nature of wireless communications infrastructure and its reliance on proprietary technology, it might be a challenge for Gotland to replicate the locally based installation approach that worked so well for fibre optic connections. Much of the technology is specific to a particular service provider and there is a strong bundling of hardware and software that leads to only a small number of firms having the capacity to provide the core infrastructure. For Gotland, many of these decisions will be made by the Swedish authorities but it will be important to ensure that the deciding authorities recognise the unique situation of Gotland. To a certain extent, the increased presence of the military on the island may make it a stronger candidate for faster installation of 5G infrastructure to serve the needs of defence forces and there may be opportunities to co-ordinate some parts of the cell tower network with military needs.

Apart from digital infrastructure improvements, there is an opportunity for Gotland to make more use of its existing digital infrastructure. The island could promote itself more strategically as a remote working hub for people working on the mainland and living on the island but also for firms considering relocating to the island and offering remote working from the mainland. Developing this further would include the need to conduct information campaigns and guidelines to best deal with remote working as well as the provision of other infrastructure such as in-kind facilities for co-working such as industrial parks or co-working spaces. For example, the Schleswig-Holstein region in Germany launched a pilot initiative, called CoWorkLand, which rezoned empty buildings in rural areas to create co-working spaces as a new solution for workers (OECD, 2021<sup>[32]</sup>).

Other support elements can include promoting the concept of the "workation" (work and vacation) as a way to encourage longer-term stays among visitors and travellers, while contributing to a more sustainable regional revitalisation model. Regions like Nishi-awa (Tokushima) or Urabandai (Fukushima) in Japan both offer plans for remote workers that include working facilities and organised touristic tours. For more permanent relocation, initiatives to facilitate the relocation process can also be beneficial. This can take the form of establishing networks with local actors that support independent entrepreneurs who wish to

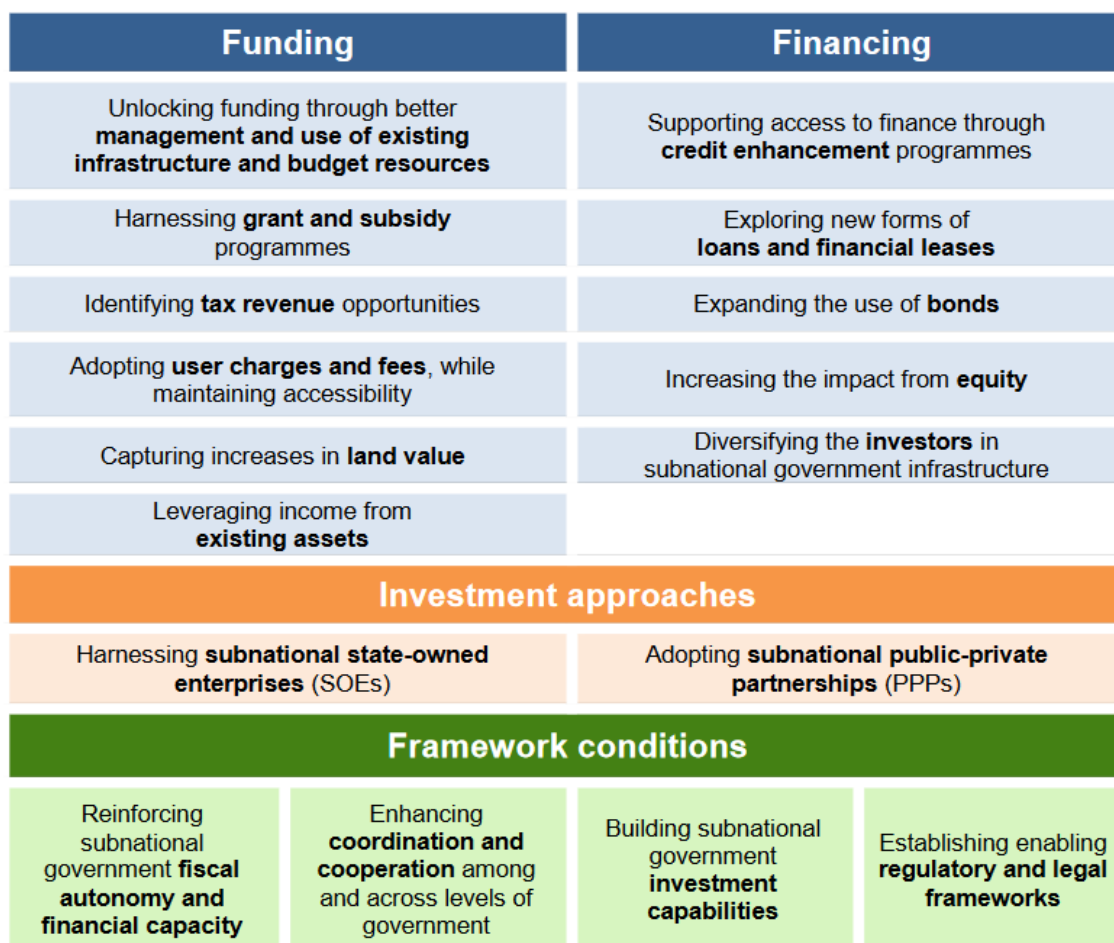
settle in the region by discussing in advance practicalities and needs (access to trains and planes or childcare and education), offering meetings with other workers already in place and sharing the experience of their families (OECD, 2021<sup>[32]</sup>).

### **Infrastructure funding and financing**

To continue to support economic development and improvements to well-being, Gotland will continue to need new infrastructure investments, which could require additional funding and financing. Given the relatively low level of current public investment and that Region Gotland is close to reaching its aim for equity/assets, the region may need to identify additional funding and financing sources to support additional infrastructure investment.

The OECD has identified a range of funding and financing approaches that regional and city governments can use to unlock funding and financing (OECD, 2021<sup>[64]</sup>). Funding opportunities can arise from better use of existing infrastructure assets, harnessing grant and subsidy programmes, identifying tax revenue opportunities, user charges and fees, land value capture and leveraging income from existing assets. Financing opportunities can include expanded use of loans, bonds and equity, and diversifying investors in infrastructure (Figure 2.3).

**Figure 2.3. Areas for innovation to support subnational government infrastructure investment**



Source: OECD (2021<sup>[64]</sup>), *Unlocking Infrastructure Investment: Innovative Funding and Financing in Regions and Cities*, <https://dx.doi.org/10.1787/9152902b-en>.

Given that Region Gotland already harnesses financing for infrastructure and is near its desired equity/assets ratio, the main opportunity for increasing investment will arise from looking for new funding opportunities. Region Gotland already has a relatively high reliance on taxation and grants from the national government. In addition, taxation pressures will likely arise from an ageing population over the coming years. This may mean that there is a lower ability to leverage taxes and grants to increase investment levels, so alternate options should be considered.

One opportunity could exist in improving the use and management of existing infrastructure and budget resources. This can maximise the whole-of-life value provided by infrastructure, reduce lifetime infrastructure expenditure and avoid a need for new revenue sources to be introduced. Opportunities for better using existing assets include harnessing data to better identify asset management priorities, involving communities in identifying infrastructure needs, increasing the value provided by assets and, in some cases, improving the management of assets through the use of subnational state-owned enterprises (SOEs). In Ontario, Canada, for example, the provincial government implemented the Rebuilding Ontario plan in 2019. Key elements of the plan include the collection of quality data, increased integrated land use and infrastructure planning, improved planning and procurement, and improved asset management. The plan establishes an interdisciplinary team to share asset management practices, improve data collection and apply advanced analytics to asset portfolios. This improved infrastructure asset management has the potential to lower future funding needs.

Another option could be to look at introducing additional user charges and fees, where appropriate. These charges and fees can strengthen the link between the beneficiaries of infrastructure and the payment for that infrastructure. Given the higher infrastructure needs that are created by summer visitors, it could be appropriate to adopt fees and charges that distribute costs in line with the higher infrastructure needs that these visitors create. For example, empty vacation homes are still often connected to electricity, water and digital infrastructure so these users should pay an appropriate “connection fee” to maintain their access, even when not in use.

Land value capture provides another opportunity to increase funding to support infrastructure investment. Land value capture can help to capture windfall gains arising from infrastructure investments or land use changes in a geographic area. In particular, developer obligations can be used to ensure that new properties pay for the additional infrastructure required in relation to their property. A charge to developers can be either in cash or in kind (where the developer directly funds complementary infrastructure) and is linked to obtaining approval to develop or build on a land parcel. The contribution is designed to compensate for the impact of new development on existing infrastructure or help pay for the cost of additional infrastructure and service provision due to new developments. Developer contributions might be channelled into a dedicated local development fund.

Finally, there may be an opportunity to better leverage income from existing infrastructure assets. Regional governments can be large owners of infrastructure, land and building assets. Often, however, these assets are underutilised by the subnational government. There may be opportunities to rent these assets at a market rate to gain additional income that can support new infrastructure investment.

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## Notes

<sup>1</sup> The term 'LEADER' originally came from the French acronym for "Liaison Entre Actions de Développement de l'Économie Rurale", meaning 'Links between the rural economy and development actions'. LEADER is implemented under the national and regional Rural Development Programmes (RDPs) of each EU Member State, co-financed from the European Agricultural Fund for Rural Development.

<sup>2</sup> Housing affordability can be broadly defined as the ability of households to buy or rent adequate housing, without impairing their ability to meet basic living costs. Over the past two decades, as housing prices have risen in most OECD countries, households are, on average, spending a large and increasing share of their budget on housing. While households across the income distribution – particularly the middle class – increasingly face challenges to pay for high housing costs, low-income and vulnerable households have long faced obstacles in the housing market and continue to struggle (OECD, 2021<sup>[58]</sup>).

# 3

## Gotland's business environment: Fostering innovation and entrepreneurship

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This chapter focuses on Gotland's business environment. Considering specificities of “insularity”, such as limited knowledge exchange networks and a geographically constrained market, it proposes policies that encourage innovation and entrepreneurial activity on the island. The chapter starts by analysing the existing business support ecosystem and identifies potential gaps for support and barriers to innovation and entrepreneurship that currently exist. It then discusses specific business areas that have the potential to further contribute to regional development, including the agro-food and hospitality industries, the creative and cultural industry, the bioeconomy and the circular economy. Skills and education, which play a central role in a healthy business environment, are considered in the last section of the chapter.

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## Assessments and recommendations

### Assessments

**For island economies, boosting innovation and entrepreneurship are essential to staying competitive and overcoming disadvantages such as lacking agglomeration effects.** On Gotland innovation and entrepreneurship have helped to diversify the local economy (agriculture, agro-foods, limestone and cement industry, forestry, creative and cultural industry, digital services and tourism). In some cases, it has also determined the survival of small rural communities by assuring basic services or developing new business models. The fact that the island functions as a national testbed for renewable energy and hosts emerging clusters in the blue and agro-food economies are essential assets that can offer significant potential if developed strategically.

**Gotland enjoys one of the highest rates of start-ups in Sweden, yet entrepreneurs are older than in other Swedish regions and small and micro businesses make up the majority of businesses.** Gotland has the second-highest share of start-ups per capita in the country (12.5 per 1 000 inhabitants just after Stockholm with 14.8). Ninety-one percent of all privately owned workplaces have 0-4 employees and less than 1% have over 50 employees. While not all local firms have the capacity or willingness to grow, it is important to identify the ones with potential and help them obtain the resources to allow for growth and add employees, moving beyond the limits of their home market.

**Although start-ups have good support structures and early entrepreneurs' access to the university, support for business growth and scale-ups are still under-developed and only punctually covered.** The incubator programme by Science Park Gotland is renowned as one of the best in Sweden, as well as for its remarkable potential for research and skills development through the university, which are at the heart of entrepreneurship support on Gotland. Yet, the system is not equipped to follow the business life cycle and provides consecutive support with every step of the way, especially for growth and scale-ups. This holds the risk of being stuck at the pilot stage for many of the ongoing projects and rarely having businesses that allow for more job creation. On Gotland, more needs to be done to understand where there is an ambition to grow, motivate entrepreneurs and offer them the needed support.

**Enhancing innovation can help mitigate seasonal effects on Gotland, which may create precarious income situations.** A large part of the local economy is seasonally defined, growing during the summer months and shrinking in the winter. Enhancing innovation in the region can add more value to established and niche markets, helping to diversify the labour market around areas of specialisation. Constraining factors to this include the difficulty of developing a distribution channel for small-scale food products, establishing close links between the agro-food and hospitality industries to attract tourists throughout the year, as well as drawing on creative and cultural industries, especially the games design university track.

**Gotland is well positioned to advance its bioeconomy and circular economy in consolidation with its ongoing status as a national pilot for a sustainable energy system and ambitions for attaining a fully renewable energy system by 2040.** The geographical and social closeness of the island provides a suitable environment for circular economy development that rely on material flows and synergies between users. The island is also home to a range of sectors that belong to the bioeconomy, including crop and animal production, forestry, manufacturing of food products, beverages and tobacco products and aquaculture.

**Gotland records lower levels of education than the Swedish average and faces relatively high student drop-out rates before reaching university or other forms of tertiary education, making it difficult for employers to find highly skilled workers.** Upskilling local employees and building a local

workforce that fits the needs of the local economy is of increased importance for Gotland. Even more so, in the coming years, large numbers of teachers (and other professions) need to find successors.

## Recommendations

**To boost productivity and achieve sustained growth in the medium and long terms, the region should expand and better integrate its entrepreneurial support system, strengthen innovation capacity and assure skills development. To this end it should:**

- Provide business support across all relevant stages of the business life cycle, focusing on island-specific challenges and fostering interaction between existing stakeholders:
  - ***Assuring the business support system covers all business life cycle stages and facilitates collaborative action for innovation by:***
    - Advancing the setup of an accelerator programme, complementing the existing incubator.
    - Strengthening the interaction among Gotland’s various business ecosystem actors, pilot projects and initiatives to avoid duplication and assure consecutive support for businesses entering the system.
    - Supporting the upgrade of the emerging clusters, the Green and Blue Centres, strengthening their business engagement and developing them into single access points for knowledge.
    - Strengthening collaboration between the university and business community in strategic areas, facilitating continuous stakeholder engagement roundtables on innovation facilitated by the region.
  - ***Supporting the establishment of strong “off-island” business partnerships and networks by:***
    - Upgrading the local export office by focusing on export awareness campaigns that can help break down mental barriers and more specifically provide information specific to Gotland’s industries and Baltic markets.
    - Setting up a Stockholm or mainland broker. The broker should support small- and medium-sized enterprises (SMEs) in promoting local products and directly liaising with possible buyers, such as supermarket chains, restaurants and stores, and can provide advice on marketing strategies and up-to-date market and sector information.
  - ***Improving municipal services for entrepreneurs by:***
    - Building capacity of administrative staff through peer learning with other municipalities.
  - ***Increasing SMEs’ digital skills by:***
    - Continuing to roll out targeted programmes that combine information and communications technology solutions with management training, making better use of young people’s digital skills (i.e. in apprenticeships) and setting up advisory services to develop individualised training paths.
    - Updating the region’s digital agenda to incorporate learnings and changes from the COVID-19 crisis.
  - ***Encouraging young people to become entrepreneurs by:***
    - Promoting youth entrepreneurship in formal educational programmes and extracurricular activities (e.g. model firms, entrepreneurship clubs, business plan competitions).

- Setting up a mentoring programme to match younger entrepreneurs with those who have more experience, especially retired business owners, as part of a voluntary programme.
- Developing co-working spaces across the island to allow for social interaction and networking amongst young entrepreneurs.
- **Helping local businesses better plan for succession by:**
  - Developing systematic support to promote succession planning as part of the services provided to business, including developing ownership and leadership transition plans.
  - Facilitating matchmaking for succession, creating a single directory of businesses seeking successors and potential buyers/entrepreneurs across the island.
- Add value to sectors of specialisation and further develop niche markets that allow for strategic diversification of the local economy. Specifically, the region should focus on:
  - **Developing a “farm-to-table” culture in the agro-food and hospitality industries and support farms in applying technological innovations to stay competitive by:**
    - Continuing development of a “sustainable food development office” that can support the development of local distribution pathways for small farm produce and contributes to educating the local hospitality industry about the benefits of buying local.
    - Further developing food-tourism routes through branding and identity, including wayfinding strategies and signage, and marketing and communications.
    - Continuing to support innovations in farms by helping to apply technology that already exist elsewhere. The Green Centre could leverage its university contacts and become a learning and mentoring hub for this.
  - **Utilising the creative and cultural potential of the island, further developing the creative and cultural sectors (CCS) and fostering cross-sectoral innovation programmes:**
    - Elaborating a CCS strategy, defining concrete measures and roles for the development of the CCS involving relevant local stakeholders. Establish closer co-operation between the university game design programme and Region Gotland to develop possibilities around a potential games cluster.
    - Setting up a specific incubator/accelerator (track) for the CCS that, among others, supports game design students in their transition into professional game developers. The existing cultural entrepreneurship centre or Science Park Gotland can be a platform for this.
    - Supporting cross-sectoral and interdisciplinary projects involving creative industries to bolster innovation in tourism, education, mining, energy and agriculture through the creation of platforms, organisation of events for matchmaking and links with traditional sectors.
  - **Strengthening the bioeconomy and circular economy alongside further pushing the renewable energy transition by:**
    - Further combining technological perspectives and research with regulatory framework conditions to allow for experimentation and applied research, for instance through further developing the planned Industrial Symbiosis Park and offering local innovators an entry point.
    - Establishing effective governance arrangements through harmonising regulatory requirements and assuring sufficient policy co-ordination across different circular and bioeconomy sub-sectors, such as agriculture, food, forestry, marine, waste and energy,



- and developing a circular economy strategy based on the regional development strategy.
- Enhancing collaboration between the emerging agro-food and aquaculture clusters, the Green and Blue Centres, regarding support for innovation and entrepreneurship around the food industry and saving scarce water resources.
  - Developing coaching and support on circular and bioeconomy development, i.e. on waste efficiency in businesses and across value chains, helping them to minimise waste, saving water and other materials. To realise this, the region would need to find financing support from the national government or be allowed to loosen the tax regulations for such a service.
- Address future labour market and skills needs by adjusting Gotland's training and education system and help attract and retain a skilled workforce needed for businesses to thrive by:
    - **Reinforcing the anticipatory planning and strategic understanding of future skills needs in the region by:**
      - Building a solid evidence base on current and future demand for skills and engaging in foresight exercises to guide both public and private sectors to work hand in hand on skills development, recruitment and engagement with educational institutions to provide the necessary education and training.
    - **Raising the level of education and allowing for more up- and reskilling through local SMEs by:**
      - Providing a regular opportunity for young people, from primary education onwards, to reflect on and discuss their prospective futures, allowing students to consider the breadth of the labour market and particularly occupations which are of strategic economic importance, facilitating contact with role models and providing application support.
      - Guiding SMEs to provide upskilling opportunities to their staff and assuring reskilling programmes are compatible with the part-time and long-distance learning needs of the island.
    - **Making the island more attractive for teachers by:**
      - Setting up experience-sharing networks amongst teachers of different communities, considering compensation for accommodation, supporting flexible work hours and rotation systems for itinerant teachers or/and accommodation support.
      - Further developing the national policy that supports study loans for educational professionals moving to rural municipalities, considering that delineation according to different parts of the island might be needed to adjust for inter-regional differences.

## Introduction

Gotland has a diverse economy (agriculture, agro-foods, limestone and cement industry, forestry, cultural industry, digital services and tourism). It further functions as a testbed for multiple industries including the blue and green economies that can offer significant development potential if scaled up and synergies created with other business sectors. Yet, local firms are often very small, lack the capacity or willingness to grow and are limited, with the labour market fluctuating with the seasonal economy, making it less competitive than other regions. This chapter investigates how to address barriers to business development, including market limitations, skills gaps and administrative challenges. It also suggests how to make existing innovation and entrepreneurship support networks more effective.

Innovation and entrepreneurship make regional economies more productive, more resilient and adaptive to change (OECD, 2015<sup>[1]</sup>). This is because both form the basis for new businesses and new jobs, and help to address and deal with megatrends (OECD/EC, 2019<sup>[2]</sup>). On Gotland, innovation and entrepreneurship help to diversify the local economy and make the island more attractive, for visitors and residents alike. In some cases, they even determine the survival of small rural communities by assuring basic services. For an island economy in particular, innovation and entrepreneurship are essential to stay relevant on the market and make up for the disadvantages of being a small economy without the benefits of agglomeration effects. Hence, innovation as well as the entrepreneurs who realise these innovations are crucial for the future well-being of regions.

Gotland has several strengths when it comes to entrepreneurship and innovation. Relative to other counties in Sweden, Gotland is characterised by an astounding entrepreneurial spirit. In 2019 and 2020, around 430 businesses were started each year on the island. This is the second-highest share of start-ups per capita in the country (12.5 per 1 000 inhabitants just after Stockholm with 14.8) and also more than other more urbanised regions like Skåne (12) and Västra Götaland (9.5) (Tillväxtanalys, 2021<sup>[3]</sup>). The island also benefits from a university campus, an important asset for a small population, bringing national and international students to the island and acting as a hub for knowledge exchange and creation. Good digital connectivity as well as the island's premium brand identity and cultural heritage, both as a destination and in terms of goods produced, are essential to its current success and popularity.

Gotland also has a range of challenges. As an island, the local market is physically limited by space and there is a very large number of small and micro businesses. Many firms on the island might stay small because the market is small and they do not dare to make the leap off the island, let alone to another country. In per capita terms, Gotland is the Swedish region that exports the least (SEK 17 990 per capita, far from the country's regional average of SEK 130 960 in 2018). Yet, some of the exported goods might not be counted as they pass through the neighbouring region of Västra Götaland: according to Region Gotland, the amount accounts for approximately 10-15% of potatoes that leave the island. Also, a large part of the labour market is seasonally defined, expanding during the summer months and shrinking in the winter, creating more precarious income situations. In the coming years, essential occupations including farmers, teachers and other occupations need to find successors. Gotland records lower levels of education than the national average and also face relatively high student drop-out rates before reaching university, making it difficult for employers to find highly skilled workers.

If Gotland wants to remain competitive with other regions, it needs to make improvements to its business support ecosystem, to help already existing industries and services to scale and strategically support the creation of new ones. Innovation support and fostering the skills needed for businesses to thrive are part of this. To advance along this line, this chapter identifies a number of recommendations that can help:

- Refine Gotland's business support ecosystem that enables entrepreneurs across different stages of the business life cycle and encourages innovative firms to experiment with new ideas, technologies and business models, which allows them to move from early stages towards growth, their market share and reach scale by reaching new markets and benefit from digitalisation.
- Add value to sectors of specialisation and niche markets that allow a strategic diversification of the local labour market. In specific, the chapter will focus on: agro-food and hospitality, creative industries, as well as the bioeconomy and circular economy.
- Address future labour market and skills needs by adjusting its training and education system, and help attracting and retain a skilled workforce needed for businesses to thrive.

To do this, the chapter will firstly identify a range of barriers to innovation entrepreneurship that currently exist on the island and then suggest actionable policies at the national and regional levels to address them. The chapter will also draw on important international leading practice examples Gotland could learn from.

## The role of innovation and entrepreneurship in regional economies

Innovation and entrepreneurship are two complementary dynamics that feed off each other. Innovation is the process of knowledge accumulation and a new combination of existing knowledge. Firms can use this to seek new opportunities and competitive advantage. For instance, it allows them to generate more profits, through increased sales, greater brand awareness, a new customer base or higher market shares (i.e. product innovation) or through greater cost efficiency and improved productivity (i.e. business process innovation). The entrepreneur, in this context, is the driving force of the process. Entrepreneurs are the human force that identifies opportunities, takes risks and disrupts. Entrepreneurship also plays an important role in the diffusion of innovation. Innovation diffusion is a process through which firms gather knowledge, information and innovations from outside the organisation and use them to introduce their own innovative products or processes (OECD, 2020<sup>[4]</sup>). In short, entrepreneurship is fundamental to the innovation process and innovation is the driver for entrepreneurship (OECD, 2021<sup>[5]</sup>).

For countries and regions, innovation and entrepreneurship are of crucial importance to strengthen economic growth and foster competitiveness. Entries of new firms boost job opportunities and through a process of creative destruction raise aggregate productivity. They also contribute to market dynamism, improving the breadth of choices available to consumers, and increase competition, incentivising existing businesses to improve and drive inefficient firms out of the market (OECD, 2020<sup>[6]</sup>). In times of crisis recovery, for instance from COVID-19, the creative destruction process that supports innovation endeavours is of particular importance, as it allows a reallocation of assets and resources to the more productive (efficient) firms, which in turn will be able to grow and create jobs for the recovery period (OECD, 2021<sup>[5]</sup>).

Innovation and entrepreneurship are also increasingly valued for their wider social benefits, as means to address pressing environmental and societal challenges (OECD, 2021<sup>[5]</sup>). For instance, entrepreneurship provides opportunities to people who are disadvantaged in the labour market but still may be able to create successful businesses, allowing alternative pathways to employment. Entrepreneurship also offers greater flexibility and autonomy in structuring work and can be more inclusive of social objectives than a standard employment relationship. Sometimes starting a business can also become a substitute for a small labour market. Especially, in regions that are going through economic transition, entrepreneurship and innovation can contribute to these processes and can help introduce innovative solutions to economic and social challenges to the market, in areas such as driving the green transition and creating services for ageing populations (OECD, 2020<sup>[6]</sup>).

OECD research has shown that SMEs are often at the productivity frontier and amongst the most innovative firms, jump-starting entire new industries (OECD, 2015<sup>[1]</sup>). Still, it has to be noted that innovative start-ups and SMEs only represent a small subset of start-ups. Most firms have limited ambitions to grow. To encourage entrepreneurship and allow for innovation at the heart of companies with the potential and willing, appropriate policy interventions are required. These include establishing the right framework conditions for new firm development and offering direct support to help entrepreneurs and start-ups overcome specific barriers, for example in areas such as innovation and skills (OECD, 2020<sup>[6]</sup>). A sound entrepreneurship system that encourages innovation and that enables firms and founders to experiment with new ideas, technologies and business models, helps them to grow, increase their market share and reach scale, and allows for the flow of knowledge linking the private sector to research institutions and universities (Cusmano, Koreen and Pissareva, 2018<sup>[7]</sup>).

There are significant and longstanding geographical variations in entrepreneurial and innovation activity within countries (OECD, 2015<sup>[1]</sup>). As a result, OECD research has established that is important for national programmes for entrepreneurship and innovation support to account for regional differences and geographically variable impacts. National-level entrepreneurship and innovation policies often benefit from taking into account regional variations. Further, regional policy and local programmes need to reflect the

special needs of the entrepreneurship landscape as well as the innovation potential in the region and communicate this effectively (OECD, 2020<sup>[6]</sup>).

Research has shown that SMEs that are able to come up with innovative products and services have the greatest potential to benefit rural regions through job creation. This is because they are likely to develop a product or service for which there is less competition and a market with growth potential. Yet, at national levels, there is often little support for specific rural innovation. In most OECD countries, the focus is on innovation systems that operate at the national or large regional level and might not be adjusted to rural types of innovation. Many of these systems are exclusively structured as complex interactions among public universities, large businesses with formal research and development (R&D) activity and government agencies. The idea that SMEs in rural regions can produce innovations and might require different or more targeted support is seldom considered (Freshwater et al., 2019<sup>[8]</sup>).

Most innovations developed in rural areas have small markets and mainly benefit the innovating firm and its direct customers. Few involve formal R&D efforts or patent applications. Rather, innovation in rural regions often results from company branches adopting innovations from their parent organisation or SMEs adopting innovations from other regions. In other cases, they involve user innovation where the rural SME produces innovations of direct value to the firm. Table 3.1 summarises some characteristics of rural innovation that should be considered in providing support:

**Table 3.1. Characteristics and bottlenecks of rural innovation**

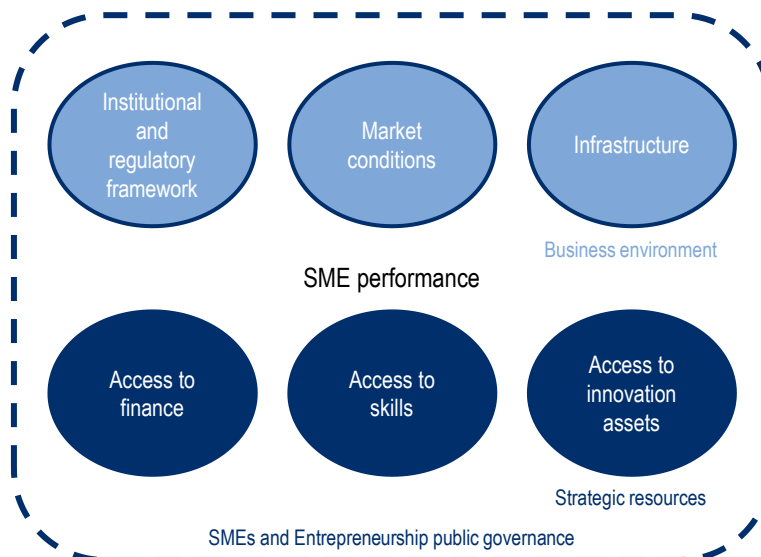
	Rural Innovation
Characteristics	Incremental and slower – less dynamic and short-lived, use of local knowledge for steady improvement
	Experimental – utilising space available to test until a solution is found
	Based on customer or client contacts
	Smaller firms requiring local leadership and dedication
	Natural resource focus (tourism, energy, agriculture, forestry)
	Strong use of social and human capital in innovation
	Community is driven – meaningfulness as an objective
	Targeting local markets
	Use of rural-urban links to leverage knowledge outside their location for more radical innovations
Bottlenecks	Dependency on young generations – need for business succession and interest/ability to work on new products and processes
	Reduced accessibility of networks, knowledge and support readily available (Missing links to universities or research institutions)
	Lack of digital connectivity and skills

Source: Mayer, H., A. Habersetzer and R. Meili (2016<sup>[9]</sup>), “Rural-urban linkages and sustainable regional development: The role of entrepreneurs in linking peripheries and centers”, <http://dx.doi.org/10.3390/su8080745>; Freshwater, D. et al. (2019<sup>[8]</sup>), “Business development and the growth of rural SMEs”, <https://doi.org/10.1787/74256611-en>; Jungsberg, L. et al. (2020<sup>[10]</sup>), “Key actors in community-driven social innovation in rural areas in the Nordic countries”, <http://dx.doi.org/10.1016/j.jrurstud.2020.08.004>; Lee, N. and A. Rodriguez-Pose (2012<sup>[11]</sup>), “Innovation and spatial inequality in Europe and USA”, <http://dx.doi.org/10.1093/jeg/lbs022>; Mahroum, S. et al. (2007<sup>[12]</sup>), “Rural innovation”, National Endowment for Science, Technology and the Arts (NESTA), London; Wojan, T. and T. Parker (2017<sup>[13]</sup>), “Innovation in the rural nonfarm economy: Its effect on job and earnings growth 2010-2014”, *ERR-238*; Shearmur, R. and D. Doloreux (2016<sup>[14]</sup>), “How open innovation processes vary between urban and remote environments: Slow innovators, market-sourced information and frequency of interaction”, <http://dx.doi.org/10.1080/08985626.2016.1154984>.

Overall, a comprehensive business environment and a well-functioning entrepreneurial “ecosystem” for business include institutional and regulatory settings, facilitate conditions to access markets and provide needed resources such as access to finance, incentivise risk-taking and experimentation by entrepreneurs, connect them to knowledge creation and ensure that business growth potential can be realised. This also

involves co-ordinated policy in a range of different areas, for example skills and education policy which promotes business and entrepreneurial skills and infrastructure policy to improve digital access and physical transportation links (OECD, 2017<sub>[15]</sub>). Regional entrepreneurial culture is also important to offer attractive opportunities for entrepreneurship and develop the abilities and attitudes among the population and administration needed to seize them (OECD, 2020<sub>[6]</sub>). Figure 3.1 depicts different business conditions for improving the business environment for SMEs and entrepreneurship. Many of these are dealt with in this review. While this chapter largely focuses on access to innovation, access to skills and market conditions in Chapters 2 and 4 are also relevant, especially the chapter on infrastructure.

**Figure 3.1. OECD SME and Entrepreneurship Concept Framework**



Source: OECD (2019<sub>[16]</sub>), *OECD SME and Entrepreneurship Outlook 2019*, <https://doi.org/10.1787/34907e9c-en>.

## **Better integrating Gotland's business support ecosystem and helping Gotland's business reach new markets and innovate more**

### ***Many Gotland enterprises stay small: expanding support for enterprises in their growth stage and strategically using innovation can help them advance to the next level***

As mentioned above, entrepreneurship that supports regional development requires a strong business environment. This can be conceptualised as the set of factors and actors that together contribute to the emergence of productive entrepreneurship in a particular territory. Brown and Mason (2017<sub>[17]</sub>) identify four key components of entrepreneurial ecosystems whose presence and linkages affect entrepreneurs:

1. Entrepreneurial actors, which provide incubation, acceleration, coaching and mentoring services to entrepreneurs.
2. Entrepreneurial resource providers, which support entrepreneurship with financial resources (e.g. banks, business angels) and knowledge and opportunities for collaboration (e.g. large firms, research institutions).
3. Entrepreneurial connectors, fostering linkages in the ecosystem (e.g. professional associations, business brokers).
4. An entrepreneurial orientation, which includes an entrepreneurial culture (Brown and Mason, 2017<sub>[17]</sub>).

Gotland has many important business support services that provide a range of what is mentioned above. Especially regarding its small size, the range of offers is impressive (for an overview of all relevant actors involved in supporting business development on Gotland, see Table 3.2). The two most comprehensive ones will briefly be described. First, Science Park Gotland (SPG), an incubator programme linked to the university, provides workspaces, coaching and business advice as well as financial support to start-ups. The six-week incubator programme (SPG Start-up) offers ongoing business advice, access to office space and a network of contacts and helps to develop a first business model, concept and pitch. If needed, the programme can be extended into a follow-up programme lasting up to two years (SPG Summit), which aims to help develop and launch a product/service and create sustainable sales. An investment arm of Science Park Gotland provides funding between EUR 20 000 and EUR 500 000. Second, Almi, a national business development advisory and loan service, also has a regional office on Gotland. They provide funding and advice for companies through coaching (online) seminars and mentoring services. While the service had an innovation advisor until 2018, this role is currently vacant.

**Table 3.2. Key actors in Gotland's innovation and entrepreneurship support system**

Organisation name	Type	Service provided	Region-specific or part of a broader network
Science Park Gotland (Invest)	Incubator/Investor	Incubation, workplaces, coaching, financing through a start-up and growth fund	Regional, linked to Uppsala University Campus Gotland, financed by Region Gotland
Almi Invest	Start-up investor	Venture capital for early-stage, emerging companies	State-owned
Almi business support	Business Development Advisory and Loan Service	Microloans, innovation loans and export financing, advisory, (online) seminars, coaching for start-up and growth phase, mentoring	State-owned, regional offices are partly region-owned by 49%
Gotland Green Centre	Educational Centre and Business Network for the Green Economy	Vocational training and secondary education in agriculture, farm animals, gardening, food production, business development and nature tourism for adults and young people/business development and innovation support, a business network for the food industry by the subsidiary Matbyrån AB	Regional, owned by Hushallningsallskapet (Rural Economy and Agricultural Society) Region Gotland, LRF (Federation of Swedish Farmers) and Tillvaxt Gotland
Blue Centre Gotland	Research and network for the blue economy	Knowledge creation and exchange, support the development of the blue industry	Regional, linked to Uppsala University Campus Gotland
Uppsala University Campus Gotland	Higher education institution	Knowledge creation and research in 20 departments offering bachelor's, master's and doctoral programmes	Part of Uppsala University

Source: Author's elaboration based on Region Gotland questionnaire responses and interviews in 2021.

Gotland is also home to two emerging cluster initiatives, the Gotland Green Centre and Blue Centres. Both centres work to strengthen and modernise existing local sectors and seek to find solutions to local development challenges. The Green Centre focuses on securing the future of the green economy on Gotland, providing educational programmes and acting as a business network for the local agro-food and animal industries. In recent years, it has put a focus on developing its education and training offer and has now turned to advancing its business network and developing more innovation centred activities through participating in LEADER projects. The Blue Centre is slightly more research-oriented, seeking to find solutions to water-related issues and aquaculture, including building knowledge about sustainable food production from lakes and oceans. It is part of the University Campus Gotland and aims to bring together academia, business and industry, and industry associations along with regions and municipalities. The

larger University Campus Gotland, part of Uppsala University, offers 11 degree programmes (bachelor's and master's) and conducts research in 20 departments.<sup>1</sup> The university has 2 400 full-time students, approximately 1 500 of whom are on-campus students, and around 230 employees. The campus also ascribes itself a special focus on sustainability, 12 study programmes with a special focus on sustainable development and 5 major research and collaboration projects being conducted on sustainability issues, including energy transition, destination development and management of natural resources.

Businesses require different types of support throughout their business life cycle. The needs of an entrepreneur just starting their own business differ from the needs of a business owner wanting to expand their operations. For example, a start-up might require greater support in promoting their product, or service or to develop a business plan, whereas a more established business might require support in accessing talent to grow the business or access to short-term finance to support cash flow in periods of growth. Traditionally, the life business cycle is mostly described as a development of several stages. These stages are referred to as the: i) seed stage; ii) start-up stage; iii) growth stage; iv) expansion stage; v) established stage; vi) maturity stage; and vii) exit stage (EC, 2018a<sup>[18]</sup>).

Gotland's current system provides good support structures for start-ups and early entrepreneurs and holds remarkable potential on the research and skills development side. Yet, in the system, support for business growth and scale-up in terms of business acceleration and growth are still under-developed and only punctually covered. The system is not yet set up in a way that follows a business life cycle and provides consecutive support every step of the way. This holds the danger of being stuck in a constant chain of pilots and having many start-ups but rarely having businesses in a stage where they allow for more job creation. On Gotland, more needs to be done to understand where there is an ambition to grow and motivate entrepreneurs that would like to grow in a way that offers them the needed support. Especially, Gotland needs to create more enabling conditions for post-entry growth, growth of small firms into mid-size ones and the scaling up of mid-size companies, as a lever to boost aggregate productivity growth and competitiveness.

While many rural places are home to a majority of micro SMEs that are focused on the local market and have little scope or desire to grow or expand the firms, there are generally some firms that have growth potential. This is also the case on Gotland. As mentioned in Chapter 1, small and micro businesses make up a large majority of all companies in the municipality of Gotland. Ninety-one percent of all privately owned workplaces have 0-4 employees and less than 3% have over 50 employees. It is important to consider that while each individual firm may not add many employees, a high number of small additions makes the difference: in other words, "many cents make a euro". Because of the limited potential of the home market, a characteristic of these firms is their potential to move beyond the limits of their home market and serve external markets (Freshwater et al., 2019<sup>[8]</sup>). A 2017 survey with entrepreneurs from Gotland indicated that there is a will to grow, with 82% of small business owners demonstrating a willingness to grow and 74% seeing good expansion opportunities (Företagarna, 2018<sup>[19]</sup>).

To improve the overall offers, there is also potential to strengthen the interaction among different actors engaged in Gotland's business support as well as the various pilot projects. Doing so can create greater cohesion and synergy in overall support and activities, which at times seem disconnected and fragmented. Common reasons for this are different authorising environments as well as reporting and funding obligations. On Gotland, more could be done to align business development agendas and offers, scan for businesses with potential and ensure consecutive support for businesses that might be able to graduate from one offer to the next. In this context, the region has a role in connecting loose ends and encouraging all actors in the system: notably Almi, SPG, Gotland Green and Blue Centres can do more to work systematically together. Regular exchanges and meetings could benefit the system and help identify gaps, duplications and options to combine strengths to boost the local economy. This can encourage a perspective where actors see themselves as one body contributing to the broader regional innovation and entrepreneurship ecosystem. Furthermore, institutions must collaborate closely in advising potential customers on what support they could benefit from best. For instance, a "no wrong door" principle for

business support could be implemented, so that businesses that seek support can find it wherever they go.

One solution to this can be complementing physical presence with online services that allow easy navigation of business services according to particular needs. This can reduce complexity, help identify gaps and help direct people to the “right” offer. A local vocational college in St. Lawrence, Canada, has developed a business ecosystem pathfinding tool to assist start-ups and scale-ups in connecting with available resources. The tool called SwitchBoard<sup>2</sup> provides navigation support and visibility to all relevant public support activities in the area of Kingston. Results are clustered and displayed according to which stage of the business circle entrepreneurs are in. In case entrepreneurs are unsure where they fit, the tool also provides assessment help and lets people research for support directed at specific groups including women.

### *Developing support for different types of scaling and growing*

Gotland, as an island, might face specific challenges in terms of business growth or scaling. The physical limits of the land and market size might influence how entrepreneurs think about the scale of the business, especially considering additional costs for transport export (around 30%) and challenges in skills recruitment. Further, it might be that firms stay small because the local market is small or because they see their business as a lifestyle endeavour and are merely interested in supporting themselves. They might also think that growth will require them to move off the island at some point. A combination of one or many of these regions can lead to business owners underestimating their potential or possibilities. It is therefore possible that mental barriers or questions need to be addressed before actual business support can help them. It is important for Region Gotland and actors in the regional business support system to better understand the main growth challenges and investigate how they can be addressed. If mental barriers play a role, an information or marketing campaign can help. Such a campaign could provide encouragement, provide positive examples and point to the services available.

Once businesses have set their ambitions to grow or scale, they generally have different ways, objectives and reasons for doing so. It can be the result of an inwardly targeted strategy to transform the business, for example through changes in management or composition of the workforce, or could be the result of external demands, for example through increased market share and sales. Scaling up could fundamentally change the structure and day-to-day operations of a business, or could leave these structures intact (OECD, 2021b<sub>[20]</sub>). Consequently, understanding differences in transformation models is key for developing the right support structures (for different modes, see Box 3.1). Hence, striking the right balance between R&D/technology-driven innovation support and other forms of innovation, especially incremental and social innovation which may be more suitable to Gotland’s business fabric – one that is populated by a high share of micro and small enterprises –, is important when thinking about setting up a business support ecosystem and the different offers the actors provide. At the moment is not very clear on Gotland which services target what kind of business needs.

#### **Box 3.1. Transformation models underpinning scaling up**

Recent work at the OECD has looked to capture evidence on the different transformation models underpinning businesses scaling-up activities. It identifies four stylised models:

- The first model is “disruptive innovators” that invest in technological innovations, typically R&D-based, which result in disruptive changes to their product range or the ways they produce.



- The second model is “gradual innovators” that prepare to scale by investing in human capital and upgrading their production processes with gains in new market shares arising from gradual improvements in the productivity of existing processes rather than from disruptive innovation.
- The third model is scalers that do “more of the same”, i.e. expansion without changes in the composition of the workforce. For example, a manufacturing firm might add a second production facility or a local retailer might add another store.
- The fourth model is “demand-driven scalers” that faces an external and temporary increase in demand that translates into a sales windfall.

While these models are stylised in the sense that most businesses will utilise a combination of the above models or may pursue different models as their business evolves, they demonstrate that supporting business growth requires consideration of the differing needs of businesses undergoing different forms of transformative growth.

Source: OECD (2021<sup>[21]</sup>), *Understanding Firm Growth: Helping SMEs Scale Up*, <https://doi.org/10.1787/6c60b04c-en>.

### *Focus on gradual innovators – Developing an accelerator and upgrading clusters*

To complement the existing business support system, Science Park Gotland (SPG) should continue its plans of developing an accelerator linked to the incubator. The accelerator could cover growth needs for entrepreneurs that are looking to steadily improve their business and possibly grow from a micro business to a small business. An accelerator programme could provide an enhanced, more intensive business support service to potential growth enterprises on Gotland and deliver the following support:

- Specialist advice.
- Recruitment advisory service and support.
- Growth workshops.
- Key sector entrepreneurial support.

It could also help support building the capacity of small and even micro enterprises to recognise innovation opportunities and not consider them irrelevant or infeasible to their businesses. One aspect of this can include supporting the adoption of knowledge or technologies that have already been generated and linking them to networks where they can learn about these through the university. Many businesses could also benefit from building managerial and organisational practices to manage and accumulate knowledge and organise the business routines needed for innovation within their businesses. For small business innovation, managerial skills and formal management practices play a key role in leveraging internal strategic resources towards inhouse innovation and collaboration with external partners. For example, target setting or quality management and monitoring, are key activities to manage innovation projects and business growth. In setting up this service, it is important to co-ordinate between Almi, which is also providing growth support, and SPG, to avoid overlap and seek complementarity. Strengthening collaboration between the university and businesses community around strategic areas and upgrading centres to clusters – to foster innovation.

Furthermore, the emerging clusters, the existing Gotland Green and Blue Centres, could do more to upgrade their activities. One essential service they could offer is to build knowledge bridges between off-island knowledge institutions and the business community, thereby enabling new research and knowledge to be quickly and efficiently shared and utilised. One particular task of the centres could be to offer enterprises a single access point to the various knowledge institutions that exist within the centre’s professional field. While at a different scale, Box 3.2 provides an example of a Blue Economy Cluster Builder initiative taking place in Scotland. The important aspect of the Scottish programme describes the

potential to add the business perspective to the currently rather research-focused endeavour of the Blue Centre Gotland.

### Box 3.2. Blue Economy Cluster Builder, Scotland

The Blue Economy Cluster Builder is a 3-year programme to communicate and raise awareness of the benefits of the blue economy in Scottish SMEs and enable them to take advantage of new opportunities. It seeks to increase the number of Scottish companies operating in the blue economy and support the growth of the blue economy in Scotland. It will provide an inclusive and free-of-charge service to ensure that Scotland's SMEs gain the optimum share of market growth and compete with international blue economies.

This programme aims to connect SMEs from across different sectors, including low carbon energy, subsea engineering, offshore renewable energy, marine shipping, power in the sea, fish processing, aquaculture, marine transport, oil and gas, marine protection, sensors, Internet of Things, new materials and more.

In this way, the cluster builder can identify new products, technology and services, as well as possible skills gaps and barriers to growth. It can then prepare SMEs for future opportunities and facilitate collaborations.

Cluster builder activities include:

- Events for SMEs.
- One-to-one support for SMEs.
- Building a sustainable cluster and raising awareness of SME capabilities in the Scottish blue economy.
- Establishing collaborations between SMEs and research institutes, including academia and innovation centres, and market intelligence for SMEs.

Source: Blue Economy Cluster Builder (n.d.<sup>[22]</sup>), *Homepage*, <https://www.scottishblueeconomy.co.uk/>.

### *Focus on more disruptive innovators – Linking to the university*

For firms that are larger or looking to grow through more radical innovations, university connections play an essential role. To do that, the university needs to establish itself as a hub for more R&D intensive innovation, supporting businesses to make changes that are more radical and that heavily rely on research-based knowledge generation and experimentation. These are likely to be more attractive to more mature businesses that are looking for greater change. While measuring innovation is challenging, patents can give some indication of new technology creation and R&D expenditures provide a measure of the inputs into the innovation process (Acsa, Anselinb and Vargac, 2002<sup>[23]</sup>). Current, measurements for patents show low results on Gotland. Between 2011 and 2021, businesses from Gotland registered 30 patents, which is the lowest number of patents compared to all counties, in total and per capita. The national average lies at 1 014 for 10 years and the median at 331. The countries with the next lowest ratings are Jämtland (84), followed by Blekinge (184) and Kronoberg (198) (Patent Och Registerings Verket, 2021<sup>[24]</sup>).

The regional government of Gotland should encourage greater engagement between the university and the local business community. The three areas identified in the smart specialisation strategy can function as a framework to promote dialogue among research institutions and Gotland's SMEs that do not currently engage with them. To structure the dialogue between the university and the business community, the region could, for example, integrate both local business and university representatives in continuous

stakeholder engagement roundtables on regional innovation. Doing so would enable the university to reach out to companies, particularly SMEs, in the region that does not yet work with the university. Other possible measures include student placement schemes or the development of curricula that are more closely linked to industry needs.

Further, high levels of R&D expenditure are viewed as a vital enabling factor for innovation. On Gotland, R&D expenditures as a percentage of gross domestic product (GDP) are extremely limited. While there is no data on private sector expenditures, public sector expenditure per GDP stands at 0.03% and higher education expenditure at 0%. This is significantly lower than in many other regions and might also be a reason for the limited growth of SMEs. To increase funding or R&D on the island, more national support could be investigated. For instance, belonging to Uppsala University, the campus on Gotland does not benefit from support from the Swedish Knowledge Foundation. The foundation provides funding when activities are conducted in collaboration between academic staff and business sector partners for university colleges and new universities. Gotland should investigate if there are similar programmes it could benefit from. Alternatively, national regulation should consider the specific status of Campus Gotland and think about adjusting the rules of the Knowledge Foundation due to its particular situation.

### ***Establishing strong off-island business partnerships and networks – Stockholm broker and local export office***

Geographic proximity matters for innovation and business growth. Agglomeration or clustering can permit locally concentrated labour markets, specialisation in production and the attraction of specialised buyers and sellers (OECD, 2015<sup>[1]</sup>). As an island, Gotland can only benefit from this to a limited extent. While networks on the island are strong, tapping into knowledge systems and markets on the mainland or in other counties can be difficult, hence a barrier to business growth. In light of this, the importance of off-island links that are conducive to knowledge flows and offer effective commercialisation of products is increased.

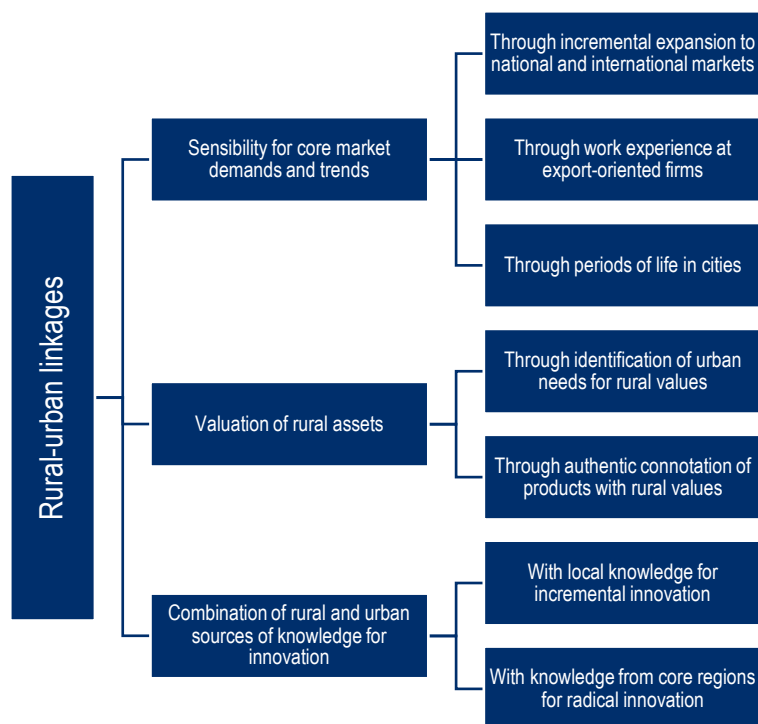
Research on rural innovation has shown that urban-rural linkages are important for businesses from the entrepreneurial perspective, notably because they allow for three things (Figure 3.2):

- Sensibility for core market demands and trends.
- Valuation of rural assets.
- Combination of rural and urban sources of knowledge for innovation.

Engaging in rural-urban linkages and market extension activities is not easy for SMEs, which often find it difficult to identify and connect to appropriate partners and networks at the local, national and global levels. Entering unknown markets and expanding a business in off-island territories can be challenging and requires additional resources. Businesses may lack knowledge on how to market their business, what regulatory barriers they may face if they move abroad, and the logistical requirements of exporting goods. Additionally, businesses may require substantial financial investment to enter new markets and may face increased financial constraints as their activities expand. The physical limitations of the island might further influence how businesses think about the scale of the business and might make the mainland market seem further away than it is. Further, some might simply prefer to only sell to the local market.

Selling products (or services) to foreign markets can be an important way to scale up for SMEs in the tradeable sector. Going global can increase the potential for firms to scale up through several mechanisms. Beyond having the opportunity to sell their products or services to more consumers, they can also “learn from exporting” – i.e. improve product quality and adopt higher-quality standards – and optimise their sourcing strategies by choosing higher-quality inputs. A sudden surge in export – e.g. because some trade barriers are removed – can underpin a demand-driven scaling model. At the same time, accessing global markets is an innovative marketing strategy that requires dedicated investments and can thus be part of a gradual innovator growth pattern.

**Figure 3.2. Rural-urban links from an entrepreneurial perspective**



Source: Mayer, H., A. Habersetzer and R. Meili (2016<sup>[9]</sup>), "Rural-urban linkages and sustainable regional development: The role of entrepreneurs in linking peripheries and centers", <http://dx.doi.org/10.3390/su8080745>.

Data on exports, for instance, show that SMEs are important for exports on Gotland: approximately 60% of international exports come from businesses with fewer than 250 employees. Yet, internationally, Gotland's SMEs export the least compared to other regions (SEK 17 990 per capita, far from the country's regional average of SEK 130 960; see also Chapter 1). To address challenges related to exporting goods and creating business links across borders and into international markets, islands across the world have developed trade commissions based on their islands. These offices help local businesses to acquire foreign investments and bridge links to innovation to ensure their businesses maintain a competitive advantage and are able to export. Two examples from Canada and the Virgin Islands are described in Box 3.3.

### **Box 3.3. Island Trade Commission examples – Prince Edward Island, Canada, and the Virgin Islands**

On Prince Edward Island in Canada, the trade commissioner's office provides local businesses with trade, investment and innovation opportunities. They specifically focus on the following sectors: i) advanced manufacturing technologies; ii) aerospace and defence; iii) bio-industries; iv) building products; v) environmental industries; and vi) information, and communications technologies. The role of the trade commissioner is to develop a first-hand understanding of the business – meeting with you in person or visiting facilities. Having received a good understanding of your business requires support from the commissioner for the following:

- Determining international competitiveness.
- Deciding on a target market.

- Collecting market and industry information.
- Improving international business strategy.
- Connecting businesses to international opportunities.
- Introducing businesses to its network of Canadian trade commissioners around the world.
- Providing referrals to other government agencies or organisations depending on the nature of the business' request.

Similarly, the Virgin Islands have set up a trade commission, with the responsibility for all activities related to trade and economic development, which will function as a “one-stop-shop” for trade, business, investment, fair competition and consumer affairs. The six functional areas of focus of the trade commission include:

- Policy planning R&D.
- Trade and export development.
- Business development.
- Investment promotion and facilitation.
- Licensing and regulation.
- Fair trade (fair competition and consumer protection).

Source: Government of Canada (n.d.<sup>[25]</sup>), *Canadian Trade Commissioner Service - Prince Edward Island*, <https://www.tradecommissioner.gc.ca/prince-edward-island-ile-du-prince-edouard/index.aspx?lang=eng>; Government of the Virgin Islands (2021<sup>[26]</sup>), “Virgin Islands Trade Commission launched”, <http://www.bvi.gov.vg/media-centre/virgin-islands-trade-commission-launched>.

On Gotland, export support is channelled through the regional export office. The export office is led via the business support system Almi, mentioned earlier. The office is part of a larger network of regional export centres that were created by the Swedish government, alongside the setup of Team Sweden, a network of public organisations, agencies and companies that promote Swedish exports and investments in Sweden. The aim of the regional office is to support companies to get in touch with promotional contacts within 24 hours. The work of the regional export centre focuses on customer interactions, seminars and conferences. The Gotland office has held an export technology training and set up a stand on Gotland's Entrepreneurs Day.

#### *Developing a mainland broker/trade commissioner and upgrading the local export office*

Gotland aims to further specialise in foodstuffs, beverages, arts and crafts that are part of high-quality, niche products. The island also has long-established mainland export businesses like the abattoir producing for Sweden's largest organic meat brand (*Smak av Gotland*) and exports large quantities of carrots to the mainland. Yet, some businesses only serve the local market and do not have international reach. Making use of Gotland as a premium-quality brand identity, many of these products could be interesting for a broader market. Particularly, urban areas like Stockholm have wealthy customers who like to support locally produced, high-quality goods and food and are able to spend more. Customers these days also increasingly value transparent value chains and like to know where their product is coming from. Gotland has an advantage in this context and can easily demonstrate where products come from and who has produced them. Furthermore, people living in other countries or on the mainland might also associate Gotland's products with experiences from their holidays or from having holiday homes/apartments on the island. Purchasing Gotlandic products (in their location) might allow them to benefit from the “Gotland feeling” on the mainland. Other potential off-island customers might not know about Gotland's products and could therefore be targeted. Hence, there is probably potential for Gotland to reach out to other markets.

Currently, individual companies organised themselves for entering the mainland market and create several individual channels specific to their products or needs. To consolidate forces and systematise reaching the mainland market, particularly Stockholm and other major Swedish cities, the region should look into establishing something like a trade commissioner office in Stockholm. Essentially, it could function as a link between the island's business and the Swedish mainland market, facilitating business relations, especially for SMEs. This office, functioning as an umbrella, could be responsible for promoting local products and directly liaising with possible buyers, such as supermarket chains, restaurants and other stores on the mainland. The office could also provide advice on marketing strategies and up-to-date market and sector information to help smooth Gotland companies' path to doing business on the mainland. At the same time, this office could co-ordinate activities that help familiarise the mainland population with Gotland products and the island as a destination, including at trade fairs and local markets for instance.

In this broker role, the commissioner should also tap into already existing networks and activities that seek to promote Gotland's products and support SMEs in their scale efforts. For instance, the LEADER project Goda Gotland has started to bring together the business community around food and seeks to help them increase visibility and competitiveness in the food business (Box 3.4). Co-operating on these activities can help initiatives based on Gotland increase their impact and achieve greater results. Furthermore, Goda Gotland could think about extending their brand further to other products, so as to create a common brand for a greater variety of Gotland products, including arts and crafts. The Gotland Green Centre and its newly established subsidiary Matbyrån should also be involved in this as they are building expertise for marketing and promotion and could strengthen their support for territorial product branding.

#### **Box 3.4. Goda Gotland – LEADER project for creating a strong food brand and viable option for small food producers**

The projects and initiatives surrounding Goda Gotland, which is part of the Green Centre, are already starting to move in this direction for food products. The LEADER-supported project facilitates Gotland companies to work and collaborate on increasing visibility and accessibility for the wide range of Gotland-produced food. It seeks to create stronger and more competitive food businesses. Part of this project also aims at increasing collaborations between producers on Gotland, creating contacts and sustainable collaborations with producers in the rest of Sweden, and creating contacts and knowledge exchanges with producers in other countries. To develop its professional network, the project organises study trips, fair participation and meetings of producers and consumers. Part of this is also to develop joint communication and marketing. In addition to building connections and a brand, the project also aims to develop an e-commerce solution that enables small- and medium-sized Gotland-based food producers to have access to a larger market at a reasonable cost.

Source: Goda Gotland (n.d.<sup>[27]</sup>), *About Goda Gotland*, <https://www.godagotland.se/valkommen/goda-gotland/>.

To help businesses access other markets (this can be on the mainland as well as across the Baltic region), the island could further assess if the business service on the island works effectively in supporting SMEs reach new markets through its existing export centre. The current offer works as a collaboration of national and regional services but does not seem to focus on Gotland-specific industries or geographical considerations, i.e. investigating possible demand from the Baltic region and brokering relationships with potential business partners. Exporting activities could be supported more prominently. The office could also take up an advocating role for Gotlandic products with Team Sweden – the network of government authorities, agencies and companies that all work to promote Swedish exports abroad. Specifically, they could target existing sub-groups of Team Sweden that are focusing on industries of interest to Gotland such as the food and creative industries. Other examples to support internationalisation from OECD

countries include: exporting awareness campaigns that can help overcome mental barriers, provision of information and advice on how to start exporting, and logistical support through trade support desks and trade trips. Governments may also offer financial support to entrepreneurs seeking to export, or offer guarantees to help them access finance exporting or reduce the risks involved (e.g. insurance to businesses exporting to certain countries, guarantees to banks providing loans to export businesses, foreign exchange rate risk cover) (OECD, 2020<sup>[6]</sup>).

Italy has adopted a unique approach to helping SMEs overcome barriers to accessing foreign markets through a programme that supports the costs of hiring a temporary export manager (as part of the 2015-17 Special Plan for the 'Made in Italy' promotion). The programme helps SMEs to hire a full-time or part-time temporary employee to work in the small business in order to help them establish marketing, sales, accounting, information technology (IT) and other processes needed to export to a new market. There is an element of training involved in the programme as well. Once the individual has developed systems to support or enhance a firm's export capacities, this knowledge is passed on to existing staff in the business and the temporary export manager goes on to support other small businesses. The programme entails two components: a training programme for temporary export managers and a voucher for SMEs to partially cover the cost of employing a temporary export manager. This programme serves to help firms access new markets and build their internal capacity to continue to do so through employee training (OECD, 2018<sup>[28]</sup>).

### ***Improve municipal services for entrepreneurs***

Gotland needs to improve its administrative services provided for businesses. The island does not perform well in the local business environment rankings of the confederation of Swedish enterprises (63% of Gotland's businesses answered the questionnaire).<sup>3</sup> It ranks 236<sup>th</sup> out of 290 municipalities and 22<sup>nd</sup> out of 29 municipalities of comparable population size. Overall, however, Gotland improved, climbing 27 points in comparison to the previous year (Svenskt Näringsliv, 2021<sup>[29]</sup>). Low rankings for the business environment might deter entrepreneurs from the mainland to set foot on the island and make the island less attractive for investments. It also puts small entrepreneurs and newcomers at a disadvantage, as many of them have fewer resources to navigate complex systems and might not be able to draw on an already established social capital.

The biggest challenges are recorded with regards to services provided by the administration, attitudes towards entrepreneurs and working with the administration. These are ranked low, including the efficiency and availability of knowledge of the business environment (for instance for building permits or licences), as well as public procurement processes. It hence seems to be cumbersome to start, run or develop companies when interacting with the local administration is required. Improvements also need to be made concerning the dissemination and provision of information. Other factors mentioned are linked to connectivity and access to employment and skills. Best results are achieved for business climate and security, and the share of goods and services purchased by the municipality from companies (Svenskt Näringsliv, 2021<sup>[29]</sup>).

While some challenges are likely linked to national regulations and troubles with permitting processes that are not of regional responsibility, the region can try to better steer local entrepreneurs through permitting and licencing processes smoothly, providing clear and easy to understand information and mitigating unpredictability, clarity and legally uncertain situations in the best possible way. This can be done by increasing the capacity of administrative staff and continuing to provide training and skills upgrades on business needs, and clearly communicating to staff that a good business climate is essential for the region's attractiveness. It might also help to set up peer learning programmes with municipalities that rank particularly well on administrative services and attitudes towards businesses and learn from how they have been able to deal with common challenges, potential partners might be Falkenberg in Halland or Mariestad in Västra Gotland. As staff in the local administration already face capacity challenges (see also Chapter 4),

having someone leave the island to join other municipalities to learn for a limited time could be challenging; to top up resources and enable learning at the same time, a model where administrative staff from other municipalities comes to visits might be more suitable.

### ***Digitalisation offers opportunities for Gotland's businesses to participate in the wider economy, innovate and grow***

Widespread digitalisation has increased access to markets and audiences (e.g. through online shopping, online exhibitions and online performances) and pathed the way for the arrival of new technologies (e.g. three-dimensional (3D) printers, delivery drones, autonomous vehicles and augmented reality). Many of these can reduce the cost of moving people and goods. This can make rural environments more attractive to people and to firms, and has lowered the barriers to settling in rural places. Furthermore, digitalisation and its technologies continue to offer a large potential for innovation and growth of SMEs. In fact, fast Internet access has become a necessity for many who wish to exploit their full economic potential. Digitally enabled enterprises use a variety of technologies to facilitate key aspects of their business including communication, collaboration and the co-ordination of activities.

Gotland has a very well-developed fibre optic network throughout the island and occupies a leading position among the regions of the country. In 2020, 88% of the population/households had access to the fibre optic network: almost 92% of the permanent population/households have access to the network and just over 60% of all properties with holiday homes (see Chapter 1). This is a large advantage over many other rural regions and has the ability to reduce the geographic gaps between the mainland and, indeed, the rest of the world. While Internet access is good, providing a stable electricity supply is a precondition for Internet operation and this has presented itself as challenging in recent years on Gotland. For an in-depth discussion on energy supply, please refer to Chapter 2.

In order for SMEs to engage with the digital economy, grow and innovate, they need to be equipped with the necessary digital literacy skills to adopt digital technologies. OECD data show that rural areas lack digital skills (see Chapter 1). In addition, research has also shown that many SMEs lack a strong understanding of how the adoption of digital technologies will improve their business productivity and efficiency (Ollerenshaw, Corbett and Thompson, 2021<sup>[30]</sup>). Digital competency includes the ability to keep up with digital developments in a way that provides opportunities to be able to start and run companies or to strengthen companies' ability to innovate and be competitive. It also means being familiar with digital tools and services and having the ability to follow and participate in digital development. The effective adoption of automation and digitalisation requires strong managerial skills in SMEs.

To be able to take advantage of the existing Internet connectivity, digital skills and knowledge about digitalisation need to increase, also on Gotland. Targeted programmes that combine information and communication technology (ICT) solutions with management training and advisory services can be especially effective for successful digitalisation. The Gotland Green Centre, as well as other business support services, could look into developing constant activities to strengthen SMEs' management capabilities, including for example technology adoption and IT engagement, which is often a leading enabler for productivity-enhancing activities. Currently, processes are often one-off offers dependent on project-related funding and therewith only provided intermittently. Furthermore, the digital skills of young people can be strategically used in businesses. In Germany, the programme Apprentices as Digitalisation Scouts (Digiscouts) promotes digitalisation in companies using the knowledge of digital natives. Projects are to be initiated and also implemented by the trainees themselves and accompanied by virtual forms of co-ordination. In order to better assess the individual needs of businesses on the island, providing individualised training paths in a concept similar to the Web Association Bergerac in France could be an option for Gotland (Box 3.5).



### Box 3.5. Initiative for developing digital skills

#### Web Association Bergerac, “La Wab” or “WAB”, Digital Training Hub (France)

The WAB is a hub for innovation and digital training operating in rural Bergerac, France, that supports local enterprises and helps them make progress towards a digital transition. The WAB offered free digital audits to small rural businesses that resulted in a personalised report on the company’s digital preparedness. It is also a “web school” that helps young people to become web experts following a two-year training course in the digital field. Through digital training, it teaches local businesses how to design effective digital strategies and identify new opportunities and markets for their business development. The WAB is also a business accelerator and a co-working space that offers support for the development of small enterprises.

WAB work involves:

- Mapping the needs of all businesses in their area through a survey. In partnership with the employment department of the local government four main categories of questions investigate: i) the perception of digital tools; ii) equipment and budget dedicated to digital tools; iii) digital needs; and iv) challenges.
- Carrying out in-depth digital audits of interested companies. These consist of a two-hour interview with the business manager and a personalised report on the company’s digital preparedness, both in terms of the quality of its equipment and skillsets. The audit also assesses the benefits and costs of digital transition for the individual company.
- Producing individualised digital roadmaps and training paths. The “digital roadmap” consists of an individually tailored course taken from a selection of 30 vocational courses on digital skills. So far a total of 48 managers took advantage of this opportunity within the project.

Source: EU (2018<sup>[31]</sup>), *Digital and Social Innovation in Rural Services*, [https://enrd.ec.europa.eu/sites/default/files/enrd\\_publications/publi-eafrd-brochure-07-en\\_2018-0.pdf](https://enrd.ec.europa.eu/sites/default/files/enrd_publications/publi-eafrd-brochure-07-en_2018-0.pdf).

Between 2015 and 2020, Gotland had a Regional Digital Agenda (RDA). The purpose of the agenda was to create a strategy and action plan to effectively utilise the opportunities of digitalisation throughout society including business digitalisation, public e-services, broadband expansion, general IT usage, e-health, digitally supported community planning and digitally supported education. The agenda presented 30 focus areas with 76 concrete sub-goals. Of these, a total of 57 (75%) have been completed. Work is underway in 10 (13%) areas. For 5 (6.5%) areas, work has not yet begun. Most of the uncompleted or underway work is in the area of e-health, which has shifted its targets to 2030. Considering this digital strategy is now expired and many advancements have been made with regard to digitalisation since the COVID-19 pandemic, it might be important for Gotland to evaluate the strategies outcomes more closely and develop an update to this important digital agenda.

#### **Missing entrepreneurs – Encouraging young people to become entrepreneurs**

Despite having many entrepreneurs relative to its population size, Gotland does not have very many young entrepreneurs. The island has the lowest rate of young start-up founders compared to other Swedish regions. It reaches a rate of 20% for the under 31-year-olds, compared to the Swedish average of 25% for under 31-year-olds (Tillväxtanalys, 2021<sup>[3]</sup>). Furthermore, a larger than average share of start-ups is founded by people over the age of 50 with 31% in comparison to 24% in Sweden (Tillväxtanalys, 2021<sup>[3]</sup>).

This suggests, that more can be done on Gotland to support youth in realising their entrepreneurial potential. At the European level, estimates suggest that about 40% to 45% of young people have an interest in pursuing entrepreneurship but only a few youths are self-employed or actively work on a business start-up (OECD/EU, 2020<sup>[32]</sup>). Important barriers for youth entrepreneurs include lack of experience and skills, low levels of collateral and savings and under-developed professional networks. According to OECD work, key actions to support youth entrepreneurship include addressing the finance gap faced by young entrepreneurs and improving the appeal of support initiatives by better capturing youth perspectives in the design of initiatives. It is also stated that financial support tends to have a greater impact on the sustainability of the business but evaluations note that training, coaching and mentoring are often more valued by youth entrepreneurs (OECD/EC, 2021<sup>[33]</sup>).

To better understand the challenges for youth entrepreneurship on Gotland, the island might want to further investigate the concrete challenges for their young entrepreneurs. Common reasons can include:

- Low levels of awareness and few entrepreneurship role models, due to a small professional network and little contact with business owners. Young people may also lack awareness of the availability of programmes that support new business ventures.
- Lack of entrepreneurship skills, for instance, in opportunity recognition, business planning, financial management, sales and marketing, inducing a lack of appropriate education and training offers to provide a strong foundation to support young people's entrepreneurial ambitions.
- Difficulty in accessing finance due to their lack of proven experience and lack of personal savings, collateral and credit history.
- In small professional networks, due to their limited work experience, young entrepreneurs have had less time than older entrepreneurs to build a professional network and rely to a larger extent on the support of their families (OECD/EU, 2020<sup>[32]</sup>).

To improve levels of awareness and encourage understanding of entrepreneurship for youth, Gotland could investigate if more could be done in the formal education system to promote youth entrepreneurship. The aim of this should be to inform youth about the role of entrepreneurship in the economy and explain what it takes to start and run a business to inspire and interest them. This can be done in two ways: i) integrating it into educational programmes; and ii) through extracurricular activities. At the secondary school level, the Youth Entrepreneurship Theme Year was organised in the Helsinki-Uusimaa Region in Finland. As part of the European Commission (EC) European Entrepreneurial Region (EER) project, the region organised a multitude of events with the aim of increasing high school students' exposure to entrepreneurship. These types of activities are important because it makes entrepreneurship more tangible and creates links to role models that come to speak in schools about their stories. To appeal to the youth, this can also be complemented by social media campaigns (OECD/EU, 2020<sup>[32]</sup>).

Success factors for entrepreneurship education include the incorporation of experiential learning and practical activities (e.g. model firms, entrepreneurship clubs, business plan competitions) into theoretical teaching to enable students to generate viable business ideas and equip them with the tools for the start-up process. This needs to be accompanied by practice-oriented student start-up programmes that support students who wish to engage with the start-up process with training, coaching and access to resources (OECD, 2020<sup>[6]</sup>). At the higher education level, the OECD Entrepreneurship Education, Collaboration and Engagement (EECOLE) network might be interesting for Gotland stakeholders, especially the university, to benefit from policy dialogue on entrepreneurship education and university-business collaboration (Box 3.6).

Already existing programmes in schools, such as Young Enterprise (Ung Företagsamhet) Gotland which promotes entrepreneurship among young people in schools with competitions, could be followed up with offers from Science Park or Almi that could specifically target young people, by designing in-person courses, thematic workshops and online classes for instance. That way youth might feel more at ease

learning about accounting and finance, law and legal issues, team building and personal development for example. As there seems to be a high number of older entrepreneurs (over 50) across the island, they could also function as a source for boosting young entrepreneurship. As part of their mentoring programme, Almi could strategically try to match younger entrepreneurs with those with more experience. Furthermore, it could seek to draw on retired business owners spending their retirement years on the island. Many of them likely have very valuable experiences they might want to share with young people for free as part of a volunteer programme.

### **Box 3.6. Supporting the development of entrepreneurial skills through the OECD EECOLE network**

Entrepreneurs are not born, they are made. Over the past decades, a number of education and training programmes have focused on entrepreneurship to promote spin-offs and start-ups, and to provide individuals with a bundle of skills that can help them with regard to the future of work and society. Within this context, the OECD has developed programmes such as HEInnovate (in co-operation with the EC) and the Geography of Higher Education to identify good practices and generate data. Capitalising on these initiatives, the OECD recently launched a new network called Entrepreneurship Education, Collaboration and Engagement (EECOLE) to strengthen the evidence on entrepreneurship education, facilitate the sharing of good practices and offer a platform for policy dialogue on entrepreneurship education and university-business collaboration. The network is built around higher education institutions (HEIs) but also includes national and subnational authorities, private sector businesses, banks, venture capitalists and business angels, non-government actors and foundations.

A core priority for the network is to support youth in a post-COVID-19 economy. This includes strengthening connections between HEIs and their students, the business community and policy makers to identify innovative approaches to internships and career guidance services. EECOLE also focuses on mainstreaming entrepreneurship education and supporting start-ups and spin-offs as means to promote jobs and innovation in all regions.

EECOLE will work through task-and-finish groups (TFGs). TFGs will work on defining entrepreneurship and measuring the effects of entrepreneurship education on individuals and on the “geography of higher education” to assess the way in which HEI resources can be mobilised to promote entrepreneurship ecosystems. Another TFG will focus on the United Nations Sustainable Development Goals (SDGs) and in particular on the role HEIs can play in helping communities to decarbonise (evidence-based policy making).<sup>4</sup>

Source: OECD/EC (2021<sup>[33]</sup>), *The Missing Entrepreneurs 2021: Policies for Inclusive Entrepreneurship and Self-Employment*, <https://doi.org/10.1787/71b7a9bb-en>.

Generally, co-working spaces and maker spaces offer the opportunity for start-ups and businesses to directly interact with other professionals, promoting the cross-fertilisation of ideas which spurs innovation. Considering the high concentration of micro enterprises on Gotland, co-working spaces across the island can provide a valuable mechanism for social interaction and networking. Makerspaces are similar to co-working environments but typically involve more direct support for collaboration and the provision of equipment for collective use. These spaces operate on diverse business models, including paid and unpaid memberships, voluntary or employed staffing and greater or lesser reliance on government support (Niaros, Kostakis and Drechsler, 2017<sup>[34]</sup>). They also lower barriers to entry for entrepreneurs as they gain access to tools, equipment and technology which would be costly to purchase (Van Holm, 2015<sup>[35]</sup>). To finance these hubs and make them economically viable, they could brand themselves as hubs for mainland people and “digital nomads” to telework in rural places for some time. In Germany, first and most,

well-known rural co-working space is situated in Bad Belzig, Brandenburg. The Community and Concentrated Work in Nature (Coconat) functions as a temporary workstation in a remodelled estate. Since 2017, it has become a meeting place for digital nomads, urban working tourists and regional dwellers working for the digital and knowledge industry (Coconat, 2022<sup>[36]</sup>).

Further ways to increase young entrepreneurship are outlined in Box 3.7 below.

### **Box 3.7. Measures for supporting youth entrepreneurship**

#### **Supporting youth entrepreneurship**

- Develop a vision for youth entrepreneurship support.
  - Embed entrepreneurship promotion and support within youth employment strategies.
- Communicate the objectives of youth entrepreneurship policies and programmes to youth, youth organisations and the community.
- Have government actors and other stakeholders define complementary roles in supporting youth entrepreneurship.

#### **Building a supportive institutional environment**

- Ensure that the regulatory environment does not discriminate or provide disincentives for youth entrepreneurship.
  - Be supportive of youth entrepreneurship in welfare, tax and regulatory systems.
  - Ensure that bankruptcy laws do not prevent young entrepreneurs from having a second chance.
- Promote a positive image of entrepreneurship to build a culture of entrepreneurship amongst youth.
  - Inform youth and society about the potential of youth entrepreneurship.
  - Celebrate young entrepreneurs as role models.
- Ensure that youth can access information and resources about entrepreneurship.
  - Provide ready information on how to start up a business.
  - Make business start-up support easily accessible to youth.

#### **Improving entrepreneurship skills**

- Provide entrepreneurship education in schools, vocational training and higher education.
  - Develop entrepreneurial mindsets as well as new ventures.
  - Provide opportunities to learn through experience (e.g. business simulations and competitions).
- Include low educational achievers.
  - Provide coaching and mentoring for young people with interest and potential for sustainable projects.
  - Use an appropriate matching mechanism to ensure a good fit between coachee/mentee and coach/mentor.
- Encourage networking.
  - Create links with other young entrepreneurs, senior entrepreneurs, investors and partners.

### Facilitating access to finance

- Provide financial literacy education to all youth.
- Ensure youth can access loans and microfinance.
- Use grants when loans are not feasible.
- Encourage alternative financing methods such as guarantees, crowdfunding, peer-to-peer lending and business angel investment.
- Complement financial support with business training and mentoring.

Source: OECD/EU (2020<sup>[32]</sup>), *Policy Brief on Recent Developments in Youth Entrepreneurship*.

### Help companies strategically plan for succession

At the end of the business life cycle stands the exit stage. Gotland is the county with the fastest growth rate of the elderly population, increasing 4.8% between 2010 and 2020, whereas the Swedish average only increased by 2.2% (see Chapter 1). This means that Gotland's population is ageing fast and in the near term, many enterprises on Gotland will have to close if they do not succeed in handing over to new generations and business owners. Many will have to look for possible candidates and prepare for corporate succession in a way that secures future business viability. Succession is a complex and long-term process that requires the transfer of responsibility, capital and competencies. Supporting businesses in their succession can be crucial for their survival and for transferring important local knowledge while assuring they are competitive in the future. To help local businesses better plan for succession, the region in co-operation with the local business association, could:

- Consider hosting an event for businesses highlighting the importance of business succession planning and where businesses can begin. In addition, consider promoting succession planning through one-on-one meetings.
- Promote business health and readiness for transition prior to succession through advice on developing ownership and leadership transition plans.
- Facilitate matchmaking for succession by creating a directory of businesses seeking successors and potential buyers/entrepreneurs.
- Investigate if people who want to close down their business still want to remain active in advising young start-up owners in matters of business development and set up a mentoring system.

### Adding value to sectors of specialisation and developing niche markets that allow for strategic diversification of the local economy

Gotland has a diverse economy (agriculture, agro-foods, limestone and cement industry, forestry, cultural industry, digital services and tourism). This is beneficial to the island because economic diversification helps to make regions more resilient to external shocks. Still, apart from a growing public sector, which provides stable incomes and is set to increase further with military presence and a growing university, a large part of the local economy is seasonally defined, expanding during the summer months and shrinking in the winter, including agriculture and tourism. Enhancing innovation in the region can add more value to established and niche markets and diversify the labour market. This is also important because specialisation in specific areas can be a key driver for productivity and growth and generally includes a type of diversification within similar activities to reduce sectoral vulnerability.

Recognising the importance of innovation, the regional development strategy Our Gotland 2040 also includes a smart specialisation strategy. Gotland has identified three areas of smart specialisation they are looking to develop further: i) hospitality industry; ii) food and agro-food industry; iii) business community's energy transition (Box 3.8). Smart specialisation is a tool for regions to become more competitive in international markets and aims to identify local assets in order to increase competition. It is a process of "entrepreneurial discovery" whereby market forces and the private sector discover and produce information about new activities, while the government assesses the outcomes and empowers the actors most capable of realising the potential. Generally, the strategy aims to identify the regional strengths in the form of activities – rather than sectors per se – by conducting an exploratory approach in which public decision-makers listen to market signals using a range of assessment tools and mechanisms such as public-private partnerships, technology foresight and road mapping.

Gotland should continue its journey of entrepreneurial discovery and further consider options for specialised diversification. This means unlocking synergies among related activities to promote new growth opportunities, rather than just focusing on single economic sectors. To this end, this section offers considerations for the region on how it can further substantiate growth in a range of identified areas of specialisation and where it could seek new related areas of growth. It specifically addresses factors such as the difficulty of developing a distribution channel for small-scale agro-food products, establishing closer links between the agro-food and the hospitality industries as well as drawing on creative and cultural industries for innovation, especially the games design university track, and consolidating bioeconomy and circular economy approaches with its ongoing transition to renewable energy.

### **Box 3.8. Gotland's three areas of smart specialisation**

#### **Hospitality industry**

- Gotland wants to be perceived as northern Europe's most sustainable travel destination. This means becoming an attractive tourist year-round destination for Swedish and international visitors to all parts of the island. To achieve this, the region wants to strengthen the destination's development through innovation and internationalisation around Gotland's authentic values. Part of this will be advancements in exports, IT, marketing communication and sales, which will increase the opportunities for co-ordinated marketing and distribution. To achieve these goals, there is active collaboration between the hospitality industry, Region Gotland, the academy and other stakeholders.

#### **Food and agro-food industry**

- Gotland's food industries span several industries, from primary production to the food industry, shops and restaurants. As part of this sector, the region seeks to strengthen product, process and brand development through innovation and investments to attain smarter growth and enhanced access to markets. Developments will benefit the primary-stage (grain, green matter and animal) production, which is considered the basis for a strong sector, as well as the processing stage, where there is still potential on which to build. The food and grocery industry contributes to Gotland's attractiveness, degree of self-sufficiency, innovation potential, transition to a sustainable society and rural development. The development of these areas is accompanied by research from the Swedish University of Agricultural Sciences and Uppsala University.

#### **Energy transition of the business sector**

- In light of the climate emergency, goals for energy and climate change have also become more ambitious on Gotland. The island has been designated an energy transition pilot area through

a government assignment to the Swedish Energy Agency and has accelerated the business community's energy transition. It wants to become a pioneer in adapting technology and seeks to further develop collaborative initiatives for climate and energy change in the business sector. Research in this area is available on Gotland and actors are strongly committed. Developments in the mineral industry towards climate-neutral cement are an essential part of this process. Indeed, there are opportunities to broaden Gotland's business life, increase its attractiveness as a place of work and create creative innovation environments for continued business development.

Source: Region Gotland (2021<sup>[37]</sup>), *Our Gotland 2040 – Regional Development Strategy for Gotland*, <https://www.gotland.se/110992>

### ***Hospitality and agro-food: Developing a “farm-to-table” culture and make use of technological applications in larger farms***

There are at least 1 400 farms on Gotland, many of which are small farms that produce high-quality meat, dairy and produce. This is one of Gotland's assets and contributes to the island's premium brand identity. It is the island's unique geographical location that creates particularly good conditions for growing a variety of fresh produce. During the summer, the hours of sunlight are long and in the winter the climate is mild in comparison to other regions of Sweden. This allows farmers to grow a large variety of food. For instance, Gotland is home to a type of dark blueberry called *blåhallon* (or *salmbär* in the Gotland dialect), ramsons (a type of European wild garlic) and truffles, as well as wheat, legumes and asparagus (Dean, 2021<sup>[38]</sup>).

Generally, a central problem for small-scale producers is the difficulty of developing a marketing channel for their products. An individual smallholding has a relatively small amount of surplus production that can be sold after household consumption is met and usually finds it hard to develop a relationship with a broker, distributor or processor that allows the remaining production to be sold. The typical fallback option is to rely on direct marketing, either through a farm stand or a farmer's market. From the perspective of the commercial food distribution channels, dealing with individual smallholdings is also challenging due to the high fixed costs of contracting for a small volume of product, potential problems with farmers meeting required quality standards and intermittent supply from a single farm (OECD, 2018<sup>[28]</sup>). On Gotland, the number of farm stands and backyard sales have increased significantly in the past years, suggesting that small farms are forced to take that route to market their products. A farmer's market does not exist on the island and direct sales are mostly organised through so-called REKO Rings, where farmers sell directly to consumers using Facebook groups. In the group, the buyer gets information on what goods are in the local REKO ring and how to order. This solution is limited in capacity and requires quite a bit of transactional effort both from consumers and producers; this is a challenge for Gotland's regional economy, as it leaves much of the high-quality produce outside the food processing chain and distribution system.

The gap between producers and markets is particularly relevant to regional development, as Gotland wants to be perceived as northern Europe's most sustainable travel destination, yet, little of the locally produced meat, dairy and vegetables, actually reach the tourists. In essence, the island is missing a fully developed “farm-to-table” culture, present in many other OECD countries, particularly in North America. Currently, restaurants and farmers, looking to do business with each other have to go to great length. First, they need to find each other and agree on the quantity and quality of products they are wishing to buy or sell and then either restaurants have to pick up the produce themselves or the farmers have to make deliveries. Both are rather time- and cost-intensive (Dean, 2021<sup>[38]</sup>). Furthermore, it seems that restaurants have little economic incentive to go the extra mile to obtain local ingredients, nor is there a widespread understanding of just how much better those ingredients can be and how they could add value to the restaurants.

Market imbalances in bargaining power between small farmers relative to large food processing companies is a sensitive policy issue. To improve the functioning of the agro-food chain, one possible solution is for farmers to form a production and marketing co-operative that provides advice to farmers on production methods to assure uniform and high-quality products, and pools production to facilitate sales to distributors and processors. Because the farmers own the co-operative it has no incentive to extract a profit margin, which should maximise benefits to the individual farmer. However, while co-operatives are in principle attractive solutions to the marketing challenge of small-scale farms, they have been found to be difficult to operate due to low volume, large numbers of producers and challenges in maintaining consistent quality. All of these add costs that have to be spread across all producers, which can reduce a farmer's interest in participation. The public sector can play an important role in both strengthening these initiatives and encouraging them where they are less prevalent by creating platforms to share knowledge between groups and determining best practices in order to better understand the risks involved in setting up and participating in co-operatives or other groups and the benefits they can bring to members.

More could also be done to support the creation of an alternative distribution channel, catering to small local produce and creating links with the local hospitality industry. While a large-scale farm may be able to contract directly with a processor or distributor, small-scale farms require an intermediary who can aggregate small amounts from multiple producers. Introducing an intermediary adds cost, leaving farmers with lower revenues. Here, the region could play a role in supporting the setup of a system, helping small farms to shoulder this cost and distribute their goods across the island to the hospitality industry. For instance, the region could support setting up a structure such as a sustainable food development office/distribution centre, linking the loose ends between producers, businesses and consumers. The aim of such an office could be to better structure and integrate food sales on the island and create a farm-to-table mentality. There are already advancements in this direction from local stakeholders, the company called Bondens Skafferi, already present in other parts of Sweden, is talking to some producers on the island to develop an alternative distribution system. The system would more clearly identify the provenance of ingredients and would be more dedicated to making sure that products are fresh, seasonal and of high quality (Dean, 2021<sup>[381]</sup>). There might be an opportunity for the region to become part of this initiative and support it with seed funding.

Furthermore, if the island seeks to live up to the goal it has set for sustainable tourism a mindset change is needed. The hospitality industry (hotels, restaurants, diners and chefs) needs to learn and be convinced that buying local has benefits. The food development office could help in this regard, running campaigns and helping market local foodstuffs to the permanent and non-permanent populations on the island. There is also potential in increasing the level of experimentation and flexibility granted to entrepreneurs who want to develop niche products that do not directly fit the industries' processing standards. Policy makers need to acknowledge, that this type of flexibility can generate innovations that can make products stand out from mass, be specific to Gotland and in this way add value to the local economy.

Another increasingly important strategy to support the links between the agro-food industry and tourism is developing curated experiences that revolve around food production and farm stays or that cover one particular product. Rural offers often face obstacles to setting this up themselves as food and tourism policy are not yet sufficiently intertwined. Yet there is significant potential for savings and economies of scale through improved co-ordination; institutional and management systems, for instance, can boost opportunities for improved efficiency. Region Gotland could also further develop its food-tourism routes by further developing branding and identity; wayfinding strategies and signage; and marketing and communications strategies in collaboration with tourism businesses. Some areas are more advanced than others in undertaking such activities. The development of rest areas or points of interest, or sub-route experiences can help to revitalise villages and towns in rural areas through increased demand for tourist services such as hotels and restaurants, and wider supply chain opportunities to support these services.



The island also has large food production and processing facilities, for instance most of the dairy production on the island goes into making powdered milk in a local factory. This is a type of business with only limited value addition in comparison to other ways of refining the product, for instance into cheese. For farmers to stay relevant in the market, it is important to invest in the modernisation of facilities and to be up to date with technological advancements. For Gotland, water retention and irrigation are of particular importance due to water stress situations. While in many cases the technology is already available, skills for applying it might not.

The local Gotland Green Centre already functions as an educational base and a starting point for growing into an agro-food development cluster on the island. To further push innovations into farms and help them apply technology that already exists elsewhere, the centre needs to be taken to another level, becoming a hub for technology transfer and implementing adaptation to climate change for the local food industry. They could also advise businesses on adding more value to products by further refining them, together with creating a strong local brand. To do this the centre can leverage already existing links with the Agricultural University in Uppsala with the help of the region, bringing people in to demonstrate how things work and help innovation diffusion on the island.

### ***Tapping into the games industry and other creative sectors***

Cultural and creative sectors (CCS) are a significant source of jobs and income, and also generate important spill-overs to the wider economy. In 2018, CCS businesses directly contributed an average of 2.2% of gross value added (GVA) in OECD countries, representing almost USD 666 billion among 28 countries. In addition to creating jobs and revenues, the benefits the sector brings also include encouraging inward investment, attracting high-skilled labour and contributing to local innovation ecosystems (Box 3.9). Beyond their economic impacts, they also have significant social impacts, from supporting health and well-being to promoting social inclusion and local social capital. Realising this, more and more regions are seeking to capitalise on the important benefits these sectors can offer for instance by making it part of their smart specialisation strategies (OECD, forthcoming<sup>[39]</sup>).

Gotland has a vibrant creative and cultural sector. In per capita terms, Gotland has more CCS operations than other regions. In total, the island counts just under 1 000 organisations (companies, associations, etc.) that generate a turnover of SEK 1 billion per year. In the past 10 years, the sector has also experienced significant growth of approximately 20% both in terms of operations and turnover (Region Gotland, 2021<sup>[40]</sup>). In terms of sub-sectors, turnover is largest in fashion (leather, textiles, wool and garment industry) and literature and press. Audio, film and gaming are third, followed by literature and artistic creation. Yet, like in many other places, literature and the press have been declining. The vast majority of operations consists of micro and small enterprises with few or no employees. Most workplaces are in performing arts, literary and artistic creation and fashion, followed by literature and press as well as advertising (Region Gotland, 2021<sup>[40]</sup>). As common for the sectors, the CCS on Gotland are also often project-based and frequently work with freelancers and other businesses in temporary arrangements.

Gotland is particularly well known for its medieval United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site Visby and its medieval churches. The well-preserved medieval Hanseatic town dates back to the 12<sup>th</sup> century and has a 3.5-kilometre-long medieval ring wall with many of its original towers still intact. Cultural activities linked to this theme draw many visitors every year, the most renowned being the annual medieval festival. As one of Sweden's biggest historic festivals, it offers over 500 events offering medieval music, theatre, markets, crafts, tournaments, lectures and courses. In addition, the island also offers a variety of concerts, art, performances and major events linked to contemporary popular culture, many of whom are connected to local culinary specialities, landscapes or cultural heritage. Some also include dedicated weeks such as the Truffle Festival, which offers not only truffle hunts but also seminars on truffles, a truffle market and opportunities to learn how truffles can be used in many different dishes. As part of the week, many different chefs will offer truffle-after-work meetings

or specific truffle menus in restaurants. Furthermore, the yearly Bergman Week plays a homage to the film director who moved to the island in the 1960s. The event is organised by the Bergman Centre on the small island of Fårö and celebrates the director's artistry, with films, lectures and discussions.

To support cultural life, Region Gotland, supports structures that include Gotlands Musiken, Art Week, Gotland County Theatre and around a hundred cultural organisations and associations such as the Bergman Centre, the Hemse film studio, Bunge Museum and three international artist residences. For instance, it supports Film Gotland a local film resource centre that functions as a network of skilled film professionals and production companies that provide the necessary resources to produce films on the island and support talent development. Among other things it offers, a regional film fund, location scouting and professional production services as well as coaching and education for all people interested in entering the film industry (Film Gotland, 2022<sup>[41]</sup>). Gotland is also home to the oldest university track for games development run by Uppsala University Campus Gotland and Kulturskolan a cultural and art school. Kulturskolan Gotland is a voluntary structure with almost 1 800 participants offering activities including courses in various instruments, singing/choir, dance, theatre and film. In addition, extracurricular activities with the compulsory school take place through Kultur-i-skolan: most activities are targeted at children but there are also some adult classes.

A recent study of the CCS identified that while there are many operations collaboration in the industry as well as between other industries is scarce (Region Gotland, 2021<sup>[40]</sup>). Many participants have expressed a need and interest to further develop collaboration and develop skills. Further sustainability seems to be a reoccurring theme across the sector. To address this challenge the current project Conversion Culture runs from August 2021 to April 2023 seeking to establish a “talk culture” and a development hub for ideas with a focus on sustainability.

An important step to support the CCS on Gotland was the creation of a new centre for cultural entrepreneurship Gotlands Kulturrum as a meeting place for the sector. In 2015, the aforementioned Kulturskolan moved from its previous location and liberated space in the centre of Visby. Following the non-profit association, Kulturklustret Visby (which then formed Gotlands Kulturrum) became engaged and advocated for preserving the space for the cultural sector. Since 2020, the space functions as a meeting place for the island's cultural cluster and offers co-working for companies in the CCS. Current tenants include a magazine, an archaeology company, photographers, sound design, music production and ceramics. The house's slightly larger rooms are not rented out for business activities but are used for concerts, performances, rehearsals, workshops, exhibitions, etc.

On the policy side, Gotland does not have a specific CCS strategy. Yet, the regional development strategy Our Gotland 2040 and the Cultural Plan 2021-2024 both mention their importance, stressing the need to promote entrepreneurship in the CCS. Concretely, the cultural plan states: “we want to promote entrepreneurship in the cultural and creative industries and support networks and meeting places that enable meetings between actors in the cultural and creative industries and between these and other businesses” (Region Gotland, 2020<sup>[42]</sup>). Despite these ambitions very limited concrete measures are specified in either policy document. The only references made indicate to investigate alternative funding for cultural destinations and that further networks, meeting places and dialogue between actors shall be created and strengthened. Identification of actors responsible for driving these efforts is missing and it seems like actions such as Gotlands Kulturrum are trying to fill this void.

To unleash its unused creative and cultural potential for regional development Region Gotland can do more to systematically support and strengthen the CCS and therewith the benefits it can bring to regional development. In line with the national strategy released in May 2022, the region needs to further develop concrete measures to support the CCS and consolidate already existing efforts, providing a unified roof. A first step in this regard could be to develop a separate CCS strategy or action plan that clearly identifies a series of concrete measures, based on evidence gathered in previous work. Measures should then clearly assign roles and identify relevant stakeholders involved. Such a process can help to streamline actions

and further activate and engaged different actors including the new centre for cultural entrepreneurship, the university, the local business association, museums and initiatives such as the film fund and others. As part of this process, also other development trajectories (tourism, agriculture) of the island need to be considered.

Especially, interconnections with the tourism/hospitality sector and the CCS can be essential to drive regional development on Gotland. Not all potential partners from either the creative/cultural or hospitality industry have a clear understanding of the opportunities and possible impacts of collaboration with creative and cultural industries. Elements to support these partnerships can include the strategic exchange of information, regular working sessions and staff exchanges. Furthermore, improving accessibility to sites or events can be essential. For instance, there might be a need to co-ordinate (public) transportation with the opening times of shops, centres, expositions or concerts, as well as a need to adapt visiting hours to the local context (arrival of cruise ships). This can increase access and attractiveness for audiences. One way to foster this is integrated guest cards that offer access to several sites, reduced transport fees or discounts on products and services from private producers of local agricultural products. There may be a way to offer a reduction on car rentals to ensure people can reach attractions outside of Visby. The positive impact of cultural tourism further depends on the length of stay of visitors. It is therefore important to offer opportunities for leisure and hospitality alongside cultural attraction (OECD/ICOM, 2019<sup>[43]</sup>).

The CCS also have a specific role to play in innovation ecosystems. They are often highly innovative, creating new products, services, processes and business models. Moreover, they also directly contribute to innovation in other sectors of the economy through collaboration, interdisciplinary research projects and so-called “soft innovation” contributions (i.e. innovations which are primarily aesthetic in nature) across supply chains. For example, video game developers working on projects to develop “serious games” for training airline pilots and surgeons, and visual artists working with health professionals to develop therapeutic strategies such as the provision of cognitive stimuli to Alzheimer’s patients. Especially in a context like Gotland, where training options might be limited, the development of serious games could benefit skills development and be used to help develop needed skills on the island. Alongside these direct contributions to innovation, creativity and culture have important unforeseen external effects (spill-over effects) on economic activities, companies, organisations and communities, as ideas, skills and knowledge developed in the CCS are taken up by other sectors (OECD, forthcoming<sup>[39]</sup>). Research on rural regions has demonstrated, for instance, that promoting the arts does facilitate innovation in rural regions (Box 3.9).

### **Box 3.9. Promoting the arts to facilitate innovation in rural regions**

Research in the United States (US) has identified the importance of the arts to innovation in rural America. Released in 2015, the Rural Establishment Innovation Survey (REIS) provides data on innovative technologies and practices. Researchers have used REIS to identify how business innovation is different in rural regions as well as how innovation and rural economies interact. The results suggest that the arts do more than simply improve quality of life. In addition to helping firms attract and retain talent, the presence of arts organisations in rural regions demonstrates a strong statistical association with innovation-oriented businesses and economic dynamism.

Arts provide two main benefits for rural communities: improved well-being and increased productivity. According to REIS data, businesses are significantly more likely to be “substantive innovators” if they operate in a rural region with 2 or 3 performing arts organisations at 70%, compared to those with none at 60%. The probability rises to 85% in counties with 4 or more such organisations. Yet, what is unclear is whether the arts are an amenity that attracts creative talent or an enabling factor to increased rates of innovation in rural regions. Whether by attracting or enabling creative talent, promoting the arts is likely to have a positive impact on the capabilities of rural firms.

The presence of performing arts organisations is associated with higher rates of design-integrated businesses in rural economies. Design integration is an important measure of growth because innovation rises with the use of design, allowing businesses to increase market share, enter new markets and export more goods and services. REIS data indicate a business is 49% more likely to be a design-integrated business if located in a region with at least 2 performing arts organisations.

However, not all rural types benefit equally from the presence of an artistic influence. Similar to urban areas, innovation concentrates on “rural creative havens”, which tend to have well-established linkages to cities, a university or natural amenities. Rural regions seeking to promote the arts should therefore consider the complementary policies necessary to make arts organisations successful. For example, rural-urban partnerships, as well as policies to improve transportation and access, can encourage greater arts participation and thereby bolster the impact on businesses (rural arts organisations report that 31% of their audiences travel “beyond a reasonable distance” to attend events).

Source: Wojan, T., D. Lambert and D. McGranahan (2007<sup>[44]</sup>), “The emergence of rural artistic havens: A first look”, <http://dx.doi.org/10.1017/S1068280500009448>.

The CCS can also support cross-sectoral and interdisciplinary innovation to fuel economic growth. Cross-industry and interdisciplinary collaboration typically requires greater resources (in regards to both time and money) than projects involving firms from the same industry sector, creating significant barriers for the often-smaller CCS businesses to get involved in such projects. Furthermore, the fact that there is still not enough awareness in other sectors of the potential of the CCS and exactly how they could be used creates additional hurdles (NDPC, 2021<sup>[45]</sup>). Support for cross-sectoral and interdisciplinary projects involving CCS businesses could significantly bolster existing innovation policy frameworks on the island feeding into work on tourism, education, mining, energy and agriculture.

Possibilities of achieving this type of collaboration are manifold but generally include strategic support for knowledge-sharing and networking activities that are brokered to enable cross-sectoral teams to work to solve specific challenges. A key issue in enabling a bottom-up approach is creating platforms and organising events appropriately in terms of matchmaking and linking with traditional sectors or sustainability initiatives. Hackathons, “meet-ups”, “speed-dating”, etc. are important in this respect both for the public and private sectors. Ideally, CCS actors should be part of the discussion and development of such policies and programmes from an early stage. More information and more than 100 leading case examples for cross-sectoral innovation with creative and cultural industries can be found via the Northern Dimension Partnership on Culture (NDPC) project on “Cross-sectoral co-operation and innovation within Creative and Cultural Industries - Practices, opportunities and policies within the area of the Northern Dimension Partnership on Culture” (NDPC, 2021<sup>[46]</sup>). The two cluster initiatives on the island as well as the university should be partners in initiating such dialogue platforms for cross-sectoral collaboration. One example of a cross-sectoral innovation hub using CCS is described in Box 3.10.

### **Box 3.10. Innovation hub at the intersection of the creative and cultural sectors**

The FuseBox in Brighton, United Kingdom (UK), connects the CCS with technology and other sectors and is a space designed for digital innovators and creative technologists. The FuseBox provides access to spaces, facilities, opportunities and expertise. It specifically encourages knowledge exchange and practices from the arts, humanities and design with new technologies. The residency programme aims to facilitate interactions and focuses on:

- **Immersive:** Virtual and augmented reality.

- **Connected:** 5G and Internet of Things.
- **Intelligent:** Artificial and computational intelligence.
- **Data:** Big data and data visualisation tools.

The hub also hosts a range of events, programmes and activities. Central to the offer is learning through doing, demonstrating and testing. For instance, it houses the Brighton Immersive Lab, offering access to hardware including virtual reality (VR)-ready PCs, tethered headsets, VR-ready smartphones, a green room, a motion capture suit and depth sensors, and a 5G testbed. The 5G testbed, enables a diverse range of companies to innovate their own application of 5G. As part of this programme small businesses learn more about 5G, enhance their existing products to take advantage of it and develop bespoke products for the technology.

Source: The FuseBox (n.d.<sup>[47]</sup>), *Homepage*, <https://thefuseboxbrighton.com>, accessed march 2022

Boosting games development and gamification on the island is one CCS sector with specific potential on Gotland. It could be used to further diversify the economic landscape and provide points for intersection with other industries. Overall, the video game sector has matured from a niche hobby for enthusiasts to a global, export-oriented industry with creative, cultural and economic significance. Especially during the COVID-19 pandemic, the industry saw an uptake, while many other CCS were struggling. The Swedish game industry has experienced steady growth. The industry has increased turnover in the past decade from EUR 130 million to an incredible EUR 3.3 billion. This is also mirrored by the number of employees in the games industry in Sweden, which increased by 9% in the past year to 6 596 people (Statistics Sweden, 2021<sup>[48]</sup>). It is estimated that every fourth person in the world has played a game created in Sweden. Gotland has the oldest university track for games development run by Uppsala University Campus Gotland. Alumni from the training are among the founders of a range of game companies including Nexile, Neat Corp, Toadman Interactive and Pixel Ferrets. Most of these companies, however, are not based on the island (Statistics Sweden, 2021<sup>[48]</sup>).

Game design provides a high value-added good that is seasonally independent. Furthermore, being based largely on a digital market, the gaming industry is also well suited for island geography where physical space is limited and transportation costs high. The local educational programme including an international student body and the excellent broadband connection on Gotland are key enabling factors for the industry already present on the island. To help students to transition into professional game developers after their studies, the island currently lacks targeted business development support and strategic collaboration with the region and its regional development activities. To develop this area further, the island would need a platform for the development of new game studios that educates students about the market, provides meeting places and can help with investment attraction or selling of games. Without the right support infrastructure, Gotland will not be able to compete with regional clusters set up in Norrbotten, Västerbotten and Västernorrland. It is hence important that local stakeholders like the university and the region collaborate on advancing this sector strategically and make use of connection to national-level support. Together, the university and Region Gotland could investigate if there is the potential to setup a larger games cluster on the island.

Concretely, to enable the development of the CCS, and specifically games design, tailored support is needed, as generic business advice often only provides limited usefulness (OECD, forthcoming<sup>[39]</sup>). An incubator/accelerator track at Science Park Gotland or as part of a more general CCS business hub, focusing on specific challenges for CCS and especially game companies, could support students and business owners. It could help train business competency and investment attraction. CCS-related incubators already exist in other regions and can be an inspiration for this. The closeness to the capital

region, where many CCS businesses, especially gamers, are located, might also be leveraged to support peer learning.

### ***Strengthen the bioeconomy and circular economy along with the renewable energy transition***

Resource and energy-intensive industries (heavy industries, mining and food systems) characterise many rural economies. They are also the drivers of climate change. To cut emissions, protect the environment and reduce the cost of climate adaptation, it is essential to transition from rural industries to bio-based and circular models. The circular economy refers to a development strategy that allows economic growth by optimising the use of natural resources, minimising environmental pressures, transforming supply chains and consumption patterns and redesigning production systems (OECD, 2020<sup>[49]</sup>). In the bioeconomy, all inputs are developed and derived from renewable biological resources.<sup>5</sup> Transitioning to these models not only reduces the carbon footprint and waste generation but also holds significant potential for boosting sustainable rural development.

Making use of this potential necessitates rethinking business models to become bio-resource oriented and more circular. In the innovation and entrepreneurship sense, a transition to a bioeconomy and circular economy requires transforming business models, supply chains and consumption patterns and redesigning production systems to see waste as resources, while sourcing materials and energy from renewable biological resources, so that withdrawal of finite resources is minimised. Yet, SMEs are often limited in terms of expertise and resources on how to make use of bioeconomy and circular economy opportunities. Furthermore, the transition requires multi-disciplinarity, which is difficult to achieve in smaller SMEs. To advance this transition, policy makers need to set the right support and incentive structures. This includes setting the right legal or financial incentives in domains such as waste management, tendering processes or awareness-raising (OECD, 2020<sup>[49]</sup>). Implementing sound circular and bioeconomy policies also requires harmonising regulatory requirements and ensuring sufficient policy co-ordination across different circular economy and bioeconomy sub-sectors such as agriculture, food, forestry, marine, waste and energy (Diakosavvas and Frezal, 2019<sup>[50]</sup>). A lot of this co-ordination happens at the local level and requires establishing effective governance arrangements.

At the national level, Sweden has a strategy for research and innovation for a bio-based economy as well as a strategy for the circular economy. Published in 2012, the strategy for bioeconomy aims to create a sustainable society, based on the use of raw materials and products from biomass. The strategy deals with many aspects of a shift to a bio-based economy, including new value chains, the central role of ecosystem services, sustainable consumption and recycling. The strategy identifies research gaps and the prerequisites for the development of the bioeconomy in Sweden. This includes the replacement of fossil fuels, more efficient use of by-products and waste products, changing consumption patterns and attitudes, and reaching environmental and socio-economic consequences of increased biomass production (Swedish Research and Innovation, 2012<sup>[51]</sup>).

In the circular economy strategy, published 2020, the government seeks to provide support and direction for actors in the business sector, the public sector, universities and other HEIs, and civil society, as well as for private individuals who want to realise business opportunities and make conscious choices on the basis of the circular transition. It identifies four focus areas, which shall be supported by action plans to be developed. The focus areas include:

- Circular economy through sustainable production and product design.
- Circular economy through sustainable ways of consuming and using materials, products and services.
- Circular economy through non-toxic and circular material cycles.

- Circular economy as a driving force for the business sector and other actors through measures to promote innovation and circular business models.

The strategy specifically mentions that the regions and the municipality of Gotland have the task of drafting, adopting and implementing a regional development strategy that can also include the transition to a circular economy (Government Offices of Sweden, 2020<sup>[52]</sup>).

Gotland is well positioned for the transition to further advance its bioeconomy and circular economy, alongside its existing renewable energy transition efforts. It is home to a range of sectors that belong to the bioeconomy, including: i) crop and animal production, hunting and related service activities; ii) forestry and logging; iii) fishing and aquaculture; iv) manufacture of food products, beverages, tobacco products; v) manufacture of wood and products of wood and cork; and vi) manufacture of wool textiles (Statistics Sweden, 2018<sup>[53]</sup>). Furthermore, the geographical and social closeness that the island offers is particularly suitable for circular economy development that relies on material flows and synergies between users. Gotland also faces significant water scarcity issues and conserving water through more circular models can provide an opportunity.

Gotland is already the energy pilot of Sweden. This means that the island is tasked with accelerating the transition into a renewable energy system faster than mainland Sweden and that the island functions as one large testbed. Currently, multiple projects are home to the island. Smartroad Gotland, for instance, is testing a unique solution for seamless charging of electric vehicles travelling on the road. The island's energy centre Energicentrum Gotland is at the centre of the work on energy transition and co-ordinates, enables, drives and communicates on all activities and offers information and support for energy efficiency improvements in companies and private households. Furthermore, the island is already sourcing renewable energy from solar and wind energy, as well as biofuels, which are used by both industry and transport. For instance, the locally produced biogas allowed the dairy company Arla to replace a large part of their fossil fuel requirements at the local plant with biogas. Still, significant emission reductions will also depend on implementing emission reduction in the local cement plant, which largely exceeds any other industry on the island (see also Chapter 1).

The ambition to be a testbed region for innovations around all aspects of the bioeconomy and circular economy, including the already existing renewable energy projects, could function well for Gotland as one innovation mission to pursue. If Gotland successfully demonstrates it can manage the green transition, not only by reducing emissions but also by saving other resources, especially as it has a large tourism sector, it could become a role model for other regions and islands and contribute to reinforcing local identity and sense of ownership among Gotlanders as a sustainable island. These objectives include a wide variety of actors in the ecosystem (university, private sector, national and regional government, local community development initiatives) and a range of measures that all need to come together as an overall umbrella. To realise this ambition, technological perspectives and research need to be combined with regulatory aspects and framework conditions, and space for experimentation. There are various examples of regions and organisations that successfully transformed themselves into demonstration labs for innovative solutions, by using instruments such as innovation deals, sandboxes and regulation low zoning (Federal Ministry for Economic Affairs and Energy, 2019<sup>[54]</sup>). Taking different stakeholder perspectives into account seems important, given the entrepreneurial spirit that exists among local communities and start-ups. It is also important to have a clear focus on the testbed ambition in terms of aligning ongoing and future activities and choosing a specific domain and (possible) partners, also given the size and relatively limited capacities of the regional government.

An important step in the right direction in this manner is the planned Industrial Symbiosis Park. It could become the centrepiece of the region's ambition, once realised. The park is supposed to become a circular economy-based hub where companies will interact both technically and socially in a circular fashion. Currently, possible synergies and exchanges that can develop between companies, industries and urban areas are investigated. The idea is to connect hydrogen storage solutions, common water facilities and

waste solutions (Swedish Environmental Research Institute, 2020<sup>[55]</sup>). As the island moves further towards setting up such a park, establishing contact with successful initiatives in other countries would be highly recommended. One particularly interesting example is GreenLab, located in the Danish town of Skive (Box 3.11).

### Box 3.11. GreenLab Skive – The world’s first green industrial park, Denmark

- GreenLab is the world’s first rural green industrial park and national research facility. The cluster’s energy is entirely sourced from renewable energy, which powers the local industrial processes. In the industrial park, everything is connected by an intelligent grid of energy and data that lets companies share their surplus energy and resources. Resident companies include green hydrogen production, a waste handling and a recycling plastic and paper facility, a factory producing protein for animal feed from invasive starfishes and different grasses, and a biogas plant closing the loop in the local cattle ranching industry.
- The establishment of the cluster created new industries and jobs in a previously merely agricultural area. Their aim is to accelerate research and technology to scale, transforming the way green energy is produced, converted, stored and applied. They also test theories in practice and have made it their goal to find viable green solutions to the world’s biggest challenges.
- To establish this cluster, the first step was to engage with local stakeholders, map the local resources and look at the demand opportunities for new resources and value streams to attract private sector investment.

Source: GreenLab (n.d.<sup>[56]</sup>), *Let’s Create a Power Shift*, <https://www.greenlab.dk/>.

Measures to foster Gotland’s transition to a bioeconomy and circular economy could include further promoting cross-industry collaboration on R&D, and SMEs with business development. Universities and research institutes have a central role to play in supporting appropriate research activities. For instance, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), in collaboration with James Cook University and Meat and Livestock Australia, has developed a cost-effective seaweed feed additive called FutureFeed, which uses a variety of Australian seaweed that significantly reduces methane emissions from livestock and has the potential to increase livestock productivity. FutureFeed has been found to reduce the production of enteric methane by more than 99% (Diakosavvas and Frezal, 2019<sup>[50]</sup>). Examples like this demonstrate, that increased collaboration between the Green and Blue Centres to advance on the path of climate-friendly bioeconomy solutions will be important to enable cross-sectoral symbiosis on the island. Therefore, the collaboration between the Green and Blue Centres with regards to supporting innovation and entrepreneurship around the food industry could be improved.

On the business and household side, the island’s Energy Centrum already offers information and support for energy efficiency improvements in companies and private households. If there is an ambition from the island to extend and also move towards supporting the bioeconomy and circular economy, it should think about complementing the establishing coaching and support on circular economy and bioeconomy. This could include: improving energy and waste efficiency in businesses and across value chains; helping them to minimise waste; saving water and other materials; recycling and reusing materials or waste; while offering green products and services. A particular focus could be placed on the tourism sector, which is an area prone to single-use goods and waste creation. With regards to financing such a possible centre, there seem to be restrictions for the use of tax payer’s money for such services. For instance, municipal taxes are not supposed to be used to finance waste reduction advisory services. To solve this problem, the region would need to find support for the national government to finance such a service or be allowed to



loosen the tax regulations. Considering the fact that water is a pressing issue on Gotland and the island has positive experiences with its energy centre, advocating for this to happen might pay off locally.

## **Gotland faces a demographic challenge to ensure sufficient high-skilled human capital but has a fundamental asset: A university campus**

### ***Regional innovation and entrepreneurship require human capital***

The positive link between human capital – the knowledge and skills embodied in workers – and income, productivity and growth is empirically well established. For example, education fosters technological progress and increases the ability to absorb innovations but also improves health, letting workers be more productive and live longer lives (OECD, 2015<sup>[11]</sup>). Consequently, the main asset for any firm, especially SMEs, is its human capital. This is even more important in the knowledge-based economy, where intangible factors and services are of growing importance. The rapid development and renewal of knowledge is a key feature of the knowledge economy. Fast-paced technological change as well as phenomena such as climate change further exacerbate and generate skills shortages or changes to the skills required to keep companies up to date with what is required by customers, business partners and even regulators.

SMEs in rural places, particularly, often struggle to attract and retain skilled and highly qualified personnel or retain and upskill them. In a survey, Gotland's business owners, many of whom are small, describe difficulties in finding skilled labour and the cost of hiring as the largest barriers to growth (Företagarna, 2018<sup>[19]</sup>). This often is because, in comparison to large firms, SMEs tend to lack the capacity and networks needed to identify and access talent but also, and sometimes more importantly, they tend to offer less attractive remuneration and working conditions compared to larger firms and therefore have difficulty competing for highly skilled workers (OECD, 2019<sup>[16]</sup>). On islands, this challenge is further aggravated as the local labour market is geographically small, commuting from the mainland is costly or difficult and firms might tend to poach skilled personnel from each other instead of actually bringing in new labour. Consequently, upskilling local employees and building a local workforce that fits the needs of the local economy is of increased importance for islands such as Gotland.

For the regional government, education and training systems, and skills policies more broadly, are important levers to support entrepreneurship and firm development. They include policies aimed at school graduates but should also cover newcomers, such as migrants, as well as adults who might require developing a different set of skills than older people (OECD, 2015<sup>[11]</sup>).

Gotland faces three particular challenges with regards to education and skills provision (see also Chapter 1):

- Like on many islands, Gotland's population is ageing and elderly dependency is high and growing. Even with a steady stream of new arrivals, the percentage of the older population (over 65 years) is estimated to rise to around 30% by 2060 and the working-age population (15-64 years) will make up around 55% of the population. As the population ages and the share of elderly people rises, it will be increasingly important for Gotland to upskill workers and ask the population of over 65-year-olds to contribute to economic activities.
- Gotland has a low average number of people with post-and upper secondary education, despite having the institutional availability of high schools, vocational training offers and a university present on the island. As Chapter 1 shows, the gap between Gotland and the Swedish average for upper secondary education is -5 percentage points for women and -9 percentage points for men. On the share of people with post-secondary education, the gap is even higher between Sweden and the island and, in contrast to the Swedish average, attainment of post-secondary education

has not increased in the past generations. This creates shortages in highly skilled people. Anecdotal evidence suggests that reasons for this include scepticism towards higher education and larger incentives to start working quickly instead of investing in transversal skills.

- Sustaining the viability of kindergartens, primary schools and secondary schools will not only depend on the number of children but also on the availability of teachers. It is forecasted that between 2021 and 2030, over 800 positions will need to be filled to meet future needs on Gotland. Compared with other regions, Gotland has the greatest regional recruitment needs based on 2020 teacher staffing. This is also because of significant retirement: on Gotland, more than half of the teaching staff are 50 years or older. This is 10% higher than the Swedish average (Skolverket, 2021<sup>[57]</sup>). The largest needs exist at the primary school level and in kindergartens. This requires the region to think about ways to replace teachers and attract younger colleagues to take up work – especially in rural communities.

### ***Future-proofing the region through better anticipation of skills needs***

Demographic changes and other megatrends require Gotland to have a good understanding of its potential future labour market and skills needs. While the local levels of data are generally good for Gotland, the strategic use of data and insights on skills and the labour market seems to be underutilised, fragmented or short-term focused. Fast technological change and developments such as climate change will require a changed set of skills needs in the future. It is important to prepare for the future in a more comprehensive and forward-looking way and prepare for career transition and professional development as needed.

Future-proofing the labour market can be improved through anticipatory planning and a strategic understanding of which skills are likely to be needed in the next 10 to 30 years. Considerations for this type of planning should include strengthening the evidence base on the current and future demand for skills, including data on retirement levels and the average age in certain professions/industries, jobs at risk of automation, and focused research on digital and data skills and required “green skills” ranging from highly specific requirements in sectors directly supporting the transition to net-zero such as energy, transport, construction, agriculture and manufacturing, through to more generic requirements across all sectors to thrive in a net-zero economy. It could also include a publicly administered employer survey to collect information on skills challenges that employers report both within their existing workforces and when recruiting, the levels and nature of investment in training and development, and the relationship between skills challenges, training activity and business strategy. Existing overarching policy goals set in the regional development strategy and the region’s smart specialisation strategy should also be reflected in such forward-looking planning.

Moreover, such a strategy needs to consider the particular complexities of the island labour market, including small initiatives and non-conventional forms of employment. As discussed earlier, part-time work, temporary contracts and self-employment are common on islands. Within this context, different types of workers and skillsets are emerging and needed, many of whom do not fit into commonly accepted patterns of full-time professions with lifelong careers. For example, island entrepreneurs might hold multiple jobs at different times of the year. This diversity should be reflected in the assessment and might therefore also diverge from national planning that might not feature this speciality.

A suitable tool for engaging in such a strategic skill planning process can be a foresight exercise. Scenario processes, for instance, allow thinking about a range of possible futures and can be a useful opportunity for addressing issues that might otherwise be neglected and for determining pathways of how to respond. Such a process should bring together experts, composed of private, public and civil society stakeholders, to assess potential future skills needs, taking technological advancements and environmental changes as well as innovations currently taking place into account. The process would also allow skills supply needs to be mapped and raised as a crucial strategic issue with employers, strengthening mutual awareness and collaboration, for instance in sharing training capacities. The

outcomes should guide both public and private sectors to work hand in hand on their attractiveness and skills provision while involving educational institutions to provide the necessary education.

Apart from getting a better grip of future skills needs, other benefits of such a process could include encouraging local industries to work together on recruitment to the island and avoiding poaching of high skilled personnel on Gotland – a challenge often faced by remote geographies. Moreover, it is important to encourage employers to consider more flexible work models, including offering off-island teleworking (reversing the idea of coming to telework on the island) but also allowing for people to share positions. This way they might have more success in attracting talent. For additional considerations on how to improve regional attractiveness please refer to Chapter 4.

Similar to Gotland, Scotland and the Scottish Isles have set ambitious targets for the net-zero transition. The nation wants to reach the target of zero greenhouse gas emissions by 2045, with a 75% reduction by 2030. Scotland already has many of the skills required to facilitate the transition to a zero-carbon economy. Many of these skills exist across many established sectors, such as energy, engineering, construction and chemical science. Still, with the growing complexity within many roles and the rapidly changing technological environment, the subnational government saw a need for a more collaborative and integrated approach to skills alignment and provision, as the scale and pace of change needed across all sectors will demand a significant realignment of investment in education, training and work-based learning towards green jobs. As a consequence, the Scottish government has set out a Climate Emergency Skills Action Plan (CESAP) described below. While focusing on one specific sector, the approach taken by Scotland could be an interesting inspiration for policy makers on Gotland on how to engage in planning for future skills (Box 3.12).

### **Box 3.12. Green skills in Scotland**

Scotland has developed a Climate Emergency Skills Action Plan (CESAP) that provides new evidence base on the skills needs of a net-zero economy with consideration of demographics, population and the availability of people, specific skillsets and geographies. It identifies potential opportunities for job growth across five broad areas of economic activity and notes priority areas for activity to drive economic change. This way it sets out a clear direction for change skills system and identifies the role that industry, communities and individuals across Scotland will play. The CESAP was published in December 2020 and focuses on the key actions needed over the next five years to 2025.

In the plan three categories of green jobs have been identified, providing a framework against which to gauge likely skills demand and develop and focus interventions when the CESAP moves to its implementation phase. These are:

- New and emerging jobs that relate directly to the transition to a net-zero economy, e.g. hydrogen cell technicians, carbon monitoring technicians and urban miners.
- Jobs affected by the transition to a net-zero economy that will need enhanced skills or competencies, e.g. architects and environmental consultants.
- Existing jobs that will be needed in greater numbers as the result of the transition to a net-zero economy, e.g. insulation installers, energy assessors and designers and multiskilled onsite operatives.

Two important measures defined in the plan are the establishment of a Green Jobs Skills Hub that will cascade intelligence into the skills system on the numbers and types of green jobs that will be needed over the next 25 years and a Green Jobs Workforce Academy. The academy will support existing employees and those who are facing redundancy, to assess their existing skills and undertake the necessary upskilling and reskilling they need to secure green job opportunities as they emerge.

Source: Scottish Government (2020<sup>[58]</sup>), *Climate Emergency Skills Action Plan 2020-2025*, <https://www.skillsdevelopmentscotland.co.uk/media/47336/climate-emergency-skills-action-plan-2020-2025.pdf>.

### ***Raise the level of education and allow for reskilling at an older age***

The general education system is well developed on Gotland and offers many opportunities, even in tertiary education (see also Chapter 1). Also, Gotland is in a good position to work on skills development as it has responsibility for both regional development and for upper secondary education. Still, levels of upper secondary and tertiary education and therewith the supply of highly skilled labour are low and below the national average (see Chapter 1 and above). Not finding the right skills can hamper business growth and regional development. It can also put public services under strain as older generations will need to be replaced. In order to upgrade skills levels, two things are important for Gotland:

- Getting more young people to complete upper secondary and tertiary education.
- Upgrading possibilities for adult education, allowing for re- and upskilling, in a way that is compatible with an island lifestyle where people might have multiple jobs and responsibilities and need to do this part-time.

The usual indicators for pursuing post-secondary education are parental education, household income and students' academic success. The socio-economic status of parents, for instance, is also known to influence the choice of upper secondary programme, which influences participation in higher education. As in other OECD countries, students without any tertiary-educated parent in Sweden are more likely to follow a vocational upper secondary pathway than a general one (OECD, 2021<sup>[59]</sup>). The fact that most parents on the island also do not have tertiary education degrees is thus likely to influence young adults' educational preferences. It also means that youth on Gotland cannot draw on their parent's experience and have to put more effort into understanding the options available. Furthermore, Gotland seems to have a shortage of study and career guides, with only 17 advisors working for around 7 000 students. Individual-level data on the socio-economic characteristics of students in upper secondary and tertiary education could give a more complete picture of the differences in the socio-economic profile of people accessing and graduating from higher education compared to society at large. These statistics are, however, currently unavailable.

Other reasons for not taking on upper secondary or tertiary education might be linked to the presence of the extractives sector. Extractive industries often well-paid jobs for low-skilled workers, for instance driving trucks or operating heavy equipment. On Gotland, it seems that young men especially do not see the long-term benefit of investing in education. Interviews conducted on the island also suggested that local young people might be drawn to making money quickly without considering that this will make it harder for them to transfer jobs at a later stage or advance with their careers. Others might prefer staying flexible and working a range of small artisanal jobs rather than seeking a more formal education.

Breaking cultural barriers to education is difficult but a range of activities can help steer students toward seeking the benefits of pursuing higher education. Generally, career counselling provides young people with specific advice to make educational, training and occupational choices on an individual basis. Career counselling includes activities that help young people to gather, understand and interpret information and apply it to their own situation, as well as impartial guidance and specialist support to help young people to understand themselves and their needs, confront barriers, resolve conflicts, develop new perspectives and

make progress (Covacevic et al., 2021<sup>[60]</sup>). Specific programmes can include getting a student in contact with alumni who have made the choice to continue their studies and can function as role models. Furthermore, providing support on application and enrolment assistance as well as guidance on courses and pathways can support pupils in making choices that might be different from what they know from their families or peers. One example of how to do this is provided in Box 3.13. The Technical College on Gotland has developed a successful programme for study advice and counselling, which could be replicated for other higher education facilities or even professions. Furthermore, previous OECD reviews of career guidance have concluded the following good practices.

- Provide regular opportunities for young people, from primary education onwards, to reflect on and discuss their prospective futures.
- Allow students to consider the breadth of the labour market and particular occupations which are of strategic economic importance, newly emerging and/or likely to be misunderstood (such as the skilled trades).
- Undertake schoolwide approaches, bringing onboard career guidance specialists but also teachers and school leaders, as well as parents and people in work.
- Provide easy access to trustworthy labour market information and advice/guidance from well-trained, independent and impartial professionals in advance of key decision points.
- Recognise that the ways in which young people think about jobs and careers are shaped by parental influence, their social background and sense of identity, addressing information asymmetries about specific professions and challenging gender and ethnic stereotyping.
- Target young people from the most disadvantaged backgrounds for the greatest levels of intervention.
- Ensure that employers, employees and workplace experiences are systematically involved in provision (Mann, V. and C., 2020<sup>[61]</sup>).

Gotland also needs to do more to allow for lifelong learning opportunities and encourage employers to work strategically to increase the skills of existing staff. This can make changing careers and employment easier. Often, employers operate their local business without understanding the full benefits of participating in apprenticeships and other work-based training opportunities, which enhance the productive capacity of a company while also improving the retention of employees. In many cases, it can be helpful to have employers mentor other firms on the benefits of training. Advertising through social media, job boards or specialist websites are also activities that can be used to get information to employers (OECD, 2015<sup>[62]</sup>).

OECD research has found that there is a lack of specific employment and training programmes in Sweden, which target SMEs (OECD, 2015<sup>[62]</sup>). SMEs should be encouraged to provide more upskilling opportunities to their staff and target them specifically at lower-skilled workers, as it is higher-skilled workers who tend to participate in these training opportunities. Employers and workers have a joint role to play in this by supporting a culture of workplace learning. It is important to build on good bottom-up collaboration and networks that already exist. To facilitate the flow of information, Scotland, UK, has developed a rural employers toolkit. It offers practical guidance on training, apprenticeships and placement support for rural businesses across all sectors of the economy. The toolkit can be [viewed here](#). Furthermore, in Northern Ireland, UK, the government established a Skills Solution Service, which consists of a small team of trained “skills advisors” who work with SMEs to provide them with advice on existing skills provision and assist in designing and brokering customised solutions for skills problems faced by employers.

While Gotland has the benefit of already having a university campus on island, a centre like the Pilbara Universities Centre could allow for a broader offer, also connecting to other programmes that are not on offer by the local campus and providing a space for adult education or satellite education and reskilling in collaboration with local industry (Box 3.13).

### Box 3.13. Pilbara Universities Centre, Australia

The Pilbara, a fairly remote region in Western Australia, has dedicated itself to promoting and supporting tertiary education in the region for all residents, irrespective of their age or background, providing the opportunity for people to stay in the region longer. A key element of the institution Pilbara Universities Centre is the support service for current and aspiring students undertaking tertiary education within the Pilbara region, especially as a part-time or adult education programme. The centre provides a unique learning environment through which students gain access to educational support, application and enrolment assistance, guidance on courses and pathways, connections with local industry, comfortable and modern facilities to study and connect with other students, as well as administrative and student support.

Source: Pilbara Universities Centre (n.d.<sup>[63]</sup>), *Homepage*, <https://puc.edu.au/>, accessed December 2021

### ***Increasing attractivity for teachers***

Many rural areas struggle to attract teachers. This challenge not only affects the regional but also the national level because shortages of newly qualified teachers disproportionately affecting rural areas could result in future rural-urban gaps in quality education. National and regional governments consequently need to work closely together to ensure that incentives for new teachers to come to rural schools are put in place and policies from both the national and regional levels complement each other. When thinking about policy options, these should not only consider monetary levels of compensation in terms of funding but also challenges related to teaching in small and multi-grade classrooms, long travel times and lack of exchange with peers, possibly resulting in feelings of isolation. In this sense, the incentives to become a teacher in a small rural school need to go beyond lump-sum financial aid (OECD, 2022<sup>[64]</sup>).

Going forward, the regional and national government should align actions and set up a mix of policies that provides additional benefits for new rural teachers. This could include offering full or partial student debt relief to graduates if they move to a rural area. A similar mechanism is already in place in Norway (Box 3.14). The Swedish Rural Affairs Committee has already proposed that the government should investigate whether it should be possible to reduce student debt for those who live and work in 23 municipalities that were identified as having challenges (SOU, 2017<sup>[65]</sup>). In a subsequent bill (Prop.2017/2018: 179), the government stated that further measures need to be taken to facilitate the supply of skills in Sweden's rural areas. Discussions involving the use of debt relief are currently underway considering delineation of geographical areas as well as employment of resident status. With regards to Gotland and the fact that the municipality is rather large and therefore also diverse, discussions on delineation should consider the differences that exist between living in the larger town of Visby and further away in more rural part of the island. A loan write-down option that is targeted at the broader Gotland municipality might do little in terms of inter-regional differences and would probably need to be complemented by other schemes. In addition, general regional attractiveness, for teachers and other positions, as mentioned in Chapter 4, should also be considered.

Other financial mechanisms could include accommodation support including teachers' residences. In addition to financial aspects, however, experience-sharing and peer contact are crucial for young teachers and their career choices. Therefore, the region should think about how to set up a community of rural teachers that allows for the needed exchange, between peers but also with more experienced teachers. Other considerations could include more flexible working hours, fewer contact hours per week and/or rotation systems as well as career incentives (e.g. faster progression of the career system for young teachers).

### Box 3.14. Reduction or write-down of student loans for moving to rural municipalities in Norway

To encourage graduates to move to rural municipalities, the Norwegian government has introduced a system, whereby graduates can profit from a reduction of their student loans when they move to an approved rural municipality. The Norwegian system of write-downs of student debt is part of a larger regional policy support package (*Tiltakssonen*) aimed at the northernmost part of Norway, i.e. Finnmark, and the seven northernmost municipalities in Troms County (Nord-Troms). The aim of the schemes is that Finnmark and Nord-Troms will become more attractive for settlement, business and work and thereby contribute to a positive development in the area. In addition to the student loan write-downs, the package also includes reduced income tax, reduced electricity fees and extra child allowance.

The scheme enables a reduction of up to 10% and a limit of NOK 25 000 per year and requires graduates to work and live in the selected municipalities for 12 consecutive months. For primary school teachers, an additional NOK 20 000 are deducted, as a special incentive. As long as people benefit from the scheme, they are also exempt from paying instalments on the loan, just the interest being due.

An evaluation from the Northern Research Institute (Norut) in 2012 points to the positive effects of the measures. They conclude that about 10% of the university students who complete their education use the opportunity to write down student loans. It also showed that, for those who benefitted from tax relief and write-down of student loans, as many as 91% remained in the municipality after 5 years.

Source: Norut (2012<sup>[66]</sup>), *Tiltakssonen for Finnmark og Nord-Troms - utviklingstrekk og gjennomgang av virkemidlene*; Lånkassen (n.d.<sup>[67]</sup>), *Reduction of Debt For You in Finnmark and Nord-Troms*, <https://www.lanekassen.no/nb-NO/Tilbakebetaling/sletting-av-renter-og-gjeld/Sletting-av-gjeld/Finnmark-og-Nord-Troms/>.

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## Notes

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<sup>2</sup> See <https://jb1.abe.myftpupload.com/>.

<sup>3</sup> A municipality's ranking depends two-thirds on companies' survey responses and one-third on statistics selected by the Confederation of Swedish Enterprise.

<sup>4</sup> For more information, please see <http://www.oecd.org/cfe/smes/geo-higher-education.htm>.

<sup>5</sup> The bioeconomy and circular economy are different but complementary approaches. Their agendas are closely linked, as both highlight resource efficiency, the re-use of resources and more sustainable consumption and production patterns. This is why they are considered together in this chapter. It has to be noted, however, that the bioeconomy is not fully part of the circular economy, as not all biological resource flows, including energy, biomass and foods, are circular. The circular economy strengthens the eco-efficiency of processes and the use of recycled carbon to reduce the use of additional fossil carbon. The bioeconomy substitutes fossil carbon by bio-based carbon from biomass coming from agriculture, forestry and marine environments. It is possible to have a circular bioeconomy.

# 4 Multi-level governance and subnational finance

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This chapter reviews the main multi-level governance arrangements and challenges of Region Gotland in the context of its regional development. As a region and a municipality, Gotland has some distinct administrative advantages. At the same time, it faces challenges with respect to a clear attribution of responsibilities, optimising its ability to invest in its development priorities and public service delivery. The successful implementation of Gotland's regional development strategy – Our Gotland 2040 – will depend on the ability of the region and the Swedish government to build on Sweden's strategic and co-ordination capacity, and enhance accountability.

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## Assessment and recommendations

### Assessment

- **Relative to other places of similar population size in Sweden (such as the municipalities of Kalmar, Östersund or Varberg), Region Gotland has significantly greater policy and administrative responsibilities.** Its status as a single unit of government (Region Gotland functions both as a region and a municipality) has brought both opportunities and challenges for the island and its residents. While the regional government enjoys relative financial flexibility and benefits from easy communication between local actors in the implementation of regional projects, both the administrative capacities of the regional government staff (especially digital skills) as well as the public resources available are not always sufficient to provide services equitably throughout the territory. This is illustrated by the fact that Region Gotland is facing some challenges in meeting its goals for citizen satisfaction with public services, as some citizens still do not feel that it is easy to get in touch with the regional government or access some public services throughout the island.
- **Financing regional development on Gotland depends on the region's fiscal health as well as its ability to optimise and effectively manage European Union (EU) funds.** Although Region Gotland enjoys greater budgetary autonomy and flexibility than other municipalities, being a mainly agricultural and tourist island economy, it has an own-source revenue stream that currently faces limitations. Gotland also faces a higher cost of infrastructure and the provision of certain public services, with almost 80% of its spending dedicated to healthcare and education. In general, there is a limited margin to finance regional development priorities from its own-source revenues. In addition to these challenges, the island could consider increasing its capacity for managing EU (or other regional development) funds, with respect to administrative capacity but also in terms of further supporting beneficiaries.
- **Receiving regional development responsibilities has empowered Region Gotland but has also accentuated co-ordination challenges with other levels of government.** On the one hand, the region can today design and implement its own strategic priorities and measures for local growth and development, based on its own assessment and knowledge of regional strengths. On the other, it has become challenging to effectively implement the policies emanating from the central level. While co-ordination is improving, national strategies are not always “place-sensitive” or their implementation exceeds the capacities of the regional government. The consolidation of regional- and local-level responsibilities into one government has also generated a lack of clarity in the distribution of responsibilities between the levels of government and produced accountability issues that need to be resolved in order to further strengthen co-ordination among regional and national agencies and improve the government-citizen relationship.
- **Optimising administrative and public services throughout the region will rest on increasing the government's capacity to deliver services.** Currently, managing skills shortages and gaps in the public sector and delivering quality services remain significant challenges. The region has not yet been able to meet its three service quality goals. There are a number of ways to address this, however, including further developing management capacities and digital skills, improving island-wide access to administrative or other public services, and partnering even more closely with service delivery organisations, such as the local development companies.

## Recommendations

- **Enabling a way to better deliver public services throughout the island:**
  - ***Continuously develop the regional government's management capacities and digital skills*** to strengthen the efficiency of the civil service in the region. Although this action is focused on the regional government team, it would greatly benefit from joint implementation in collaboration with the national government.
  - ***Reinforce the presence of regional government administrative and other services throughout the island*** to ensure a more equitable service provision across Gotland. This can be achieved by creating territorial delegations or establishing a network of access points to services – mobile or stable – in strategic places and should be monitored and assessed based on Gotland residents' levels of satisfaction with regional public services in rural areas. Its implementation will require collaboration between Region Gotland and the county administrative board (CAB).
  - ***Strengthen collaboration with local development companies*** to enable them to more effectively fulfil certain responsibilities left unattended by the regional government. Far from being undesirable, the presence of these companies has a positive impact on rural communities on Gotland. The implementation of a plan to strengthen this work can be done in alliance with GUBIS, the regional association of these companies.
- **Improving Gotland's ability to finance its regional development priorities:**
  - ***Evaluate Gotland's regional attractiveness and complement branding efforts with concrete actions***. In order to overcome Gotland's small tax base and improve its revenue stream stability, Region Gotland could double its efforts to attract new residents and businesses on a permanent basis. It is necessary to conduct an assessment of Gotland's current features and measure their attractiveness for specific target groups (families, students, businesses in key industries, etc.). Then, the region could look for ways to reinforce its current regional branding strategy to attract those targeted groups by offering them and communicating concrete benefits. These efforts should be led by Region Gotland in close co-ordination with the CAB, national agencies and regional stakeholders from the third and private sectors. The strategy should be projected in the medium term and assessed based on population growth due to immigration and the development of key economic sectors, such as tourism and other desired industries.
  - ***Enhance capacities for the management of EU funds*** by reinforcing the skills of regional staff in the governance of EU funds, attracting skilled professionals, reaching out to experts/consultants, strengthening advisory mechanisms for beneficiaries and establishing better dialogue and knowledge exchange mechanisms with regional stakeholders. Gotland should aim to take better advantage of the availability of international funding to increase the scope of projects financed by the EU and, for this, it is key that Gotland strengthens its administrative capacities both at the government level and among regional stakeholders. To achieve this, Region Gotland must seek partners both in the national government and in other regions where the capacities exist, and contact or consult experts on the subject.
- **Strengthening the co-ordination environment for regional development:**
  - ***Strengthen vertical co-ordination to ensure place-based and island-proof policies*** to better align national and regional-level development strategies, and facilitate the implementation of investment projects and strategies that involve different levels of government. Region Gotland could urge the national government to seek collaborative ways to improve dialogue platforms and create regulatory instruments of national scope in order

to ensure the consideration of the specific conditions and needs of the islands and promote the creation of policies that are island-proof.

- **Clarify assignments among levels of government** by establishing a working group that brings together Region Gotland and the different national agencies with a presence on the island. This would help to identify critical yet unclear assignments and overlapping elements, and to communicate to the national government a roadmap to solve these issues. The success of such a measure will depend on collaboration between the regional government, the CAB and national agencies in the region, and should be assessed based on the comparison of the results of the same measurement instrument applied before and after the proposed roadmap was implemented.
- **Enhance accountability by introducing new performance monitoring and evaluation mechanisms** in order to improve transparency in the distribution of competencies and resources and strengthen the relationship between levels of government and between Region Gotland and the region's residents. This could be done by establishing an inter-operated reporting platform that allows all actors – public agencies, private businesses, non-profit organisations and citizens – to track who (level of government, agency) does what (responsibilities), how (mechanisms, policies, projects) and with what resources (funding and transfers). A baseline of the situation must be established a priori and it should be re-evaluated in a period of three to five years.

## Introduction

The design and implementation of effective regional development strategies require a sound multi-level governance system that ensures co-ordination between various stakeholders (national, regional, local, private, etc.) while also facilitating the emergence of place-based policy measures (OECD, 2020<sup>[1]</sup>). Multi-level governance is understood as the mutual dependence that exists among different levels of government, and the various frameworks, institutions and practices that support policy and service delivery action among them (Charbit and Michalun, 2009<sup>[2]</sup>). This chapter offers recommendations on how to improve multi-level governance and institutional arrangements on Gotland in the interest of better regional development outcomes.

As a subnational government body, Region Gotland simultaneously holds the responsibilities of a Swedish region and a municipality. Relative to other places of similar population size in Sweden (such as the municipalities of Kalmar, Östersund or Varberg), it has significantly more policy and administrative responsibilities. This brings opportunities and challenges to the island. With fewer administrative layers, it has reduced bureaucracy and facilitated policy implementation throughout the region, along with generating easy communication with regional and local stakeholders. However, the dual administrative status poses challenges to ensuring clarity about the distribution of tasks and the organisational structure of the regional government, particularly as regards its dual status as a municipality, as well as with respect to the CAB and other deconcentrated bodies. Additional challenges include ensuring equitable public service provision throughout the territory and ensuring sufficient human and financial resources to deliver on regional and municipal responsibilities.

This chapter assesses the multi-level governance system and local finances on Gotland. It offers a set of recommendations to strengthen the institutional and financial arrangements needed to effectively implement its regional development strategy and address the aforementioned challenges. In the first part, it reviews the territorial organisation of Sweden and Gotland's position within it, with recommendations to clarify the distribution of responsibilities among levels of government. The second section considers fiscal frameworks on Gotland and offers ideas for making its revenue structure more stable. It also provides



recommendations for Gotland's reinforcement of public investment in regional development. The third section addresses strategic frameworks for regional development in Sweden and Gotland, including national and regional-level strategies, institutions and vertical co-ordination mechanisms. It also provides recommendations to strengthen the co-ordination environment on Gotland. The fourth section addresses the challenges in terms of public service provision and offers a set of recommendations to strengthen the work of the regional government. Finally, the chapter considers how performance monitoring and evaluation mechanisms can enhance accountability for regional development activities on Gotland.

## Territorial organisation in Sweden and Gotland

Sweden is a unitary and decentralised country. It has a two-tier system of subnational government, with 21 counties or regions (TL3) and 290 municipalities (Table 4.1). Traditionally, the Swedish system was said to resemble an hourglass, where both the highest (central government) and lowest (municipalities) tiers of government were more influential and carried more responsibilities than the middle tier (counties/regions). This situation has evolved in recent decades, as regional governments received more decision-making power in several areas and took charge of regional development responsibilities, such as creating their own regional development strategies and implementing public transport and infrastructure policies (Box 4.1) (OECD, 2017<sup>[3]</sup>).

**Table 4.1. Sweden's territorial administrative structure**

TL2 - <i>Riksomraden</i> (National areas, only for statistical purposes)	TL3 - <i>Län</i> (Counties)	Number of municipalities
Stockholm	Stockholm	26
East Middle Sweden	Uppsala; Södermanland; Östergötland; Västmanland	52
Småland with Islands	Jönköping; Kronoberg; Kalmar; <b>Gotland</b>	34
South Sweden	Blekinge; Skåne	38
West Sweden	Halland; Västra Götaland	55
North Middle Sweden	Värmland; Dalarna; Gävleborg	41
Central or Middle Norrland	Västernorrland; Jämtland	15
Upper Norrland	Västerbotten; Norrbotten	29
<b>Total: 8</b>	<b>Total: 21</b>	<b>Total: 290</b>

Source: OECD (2021<sup>[4]</sup>), *OECD Territorial Grids*, <https://www.oecd.org/regional/regional-statistics/territorial-grid.pdf>.

### Box 4.1. Overview of Sweden's multi-level governance framework

Sweden is a unitary and decentralised country. Its two-tier system of subnational government comprises 21 counties or regions (TL3) and 290 municipalities. The country's multi-level governance structure has historically had strong central and municipal tiers of government and a slimmer regional tier. Over the past two decades, however, a growing number of responsibilities have been transferred to regional governments, thereby rounding out the differences among the three government tiers.

**County councils** are elected regional governments. Their primary responsibilities include organising health and social services for citizens. Since 1996, however, more and more county councils have also acquired additional regional development responsibilities from the central government, including

regional growth policy, transport, infrastructure, culture, skills development and tourism. This process culminated in 2018 with the passage of a Swedish government bill, which extended the responsibility for managing regional development policy to county councils in all parts of the country.

**County administrative boards (CABs)** represent the central government at the regional level. Their administrations are led by county governors who are appointed by the central government. CABs are responsible for ensuring that decisions taken by the national government and parliament are being implemented within the county. They are also responsible for co-ordinating central government activities within the county and for regional oversight, notably monitoring whether the decisions made by county councils and municipalities are compliant with existing laws and regulations. CABs also have service responsibilities, which include tasks such as managing EU funding.

**Municipal councils** are the lowest level of elected government in Sweden. Municipalities vary significantly in land area and population size, as well as tax base and age structure. In 2020, for example, 52% of municipalities had between 5 000 and 20 000 inhabitants, while 42% had more than 20 000 and 8% had less than 5 000. Municipal councils are responsible for a wide range of public policy areas, including social protection, education, urban planning, healthcare (prevention), environmental protection, waste management, water and sewerage, local roads and public transport, housing, rescue services and emergencies, social services, leisure and culture.

Source: OECD (2017<sup>[3]</sup>), *OECD Territorial Reviews: Sweden 2017: Monitoring Progress in Multi-level Governance and Rural Policy*, <https://doi.org/10.1787/9789264268883-en>; OECD (forthcoming<sup>[5]</sup>), *World Observatory on Subnational Government Finance and Investment: Sweden*, OECD, Paris.

Gotland is the only Swedish municipality that is also considered a region. It received regional development responsibilities in 1998 and, in 2011, it changed its name from the Municipality of Gotland to Region Gotland. In 2019, Sweden extended regional development responsibilities to the remaining regions. As such, since 2020, all counties have been renamed regions (Swedish Government, 2019<sup>[6]</sup>). According to Swedish legislation, regions are tasked with leading, co-ordinating, following up and reporting on regional development issues. This includes the development of the regional development strategy and the co-ordination of activities for its implementation (OECD, forthcoming<sup>[5]</sup>).

Territorial administration is the responsibility of both deconcentrated and decentralised authorities. CABs are deconcentrated government authorities present in each county. They represent the national government in the county and act as a territorial co-ordinator and monitor central government policies and strategies (Swedish Government, 2022<sup>[7]</sup>). CABs also have responsibilities such as managing certain EU funds and monitoring county developments and needs in key areas (such as infrastructure planning, energy and climate and sustainable community planning and housing) (Region Gotland, 2022<sup>[8]</sup>). They are responsible for ensuring that national-level goals and related strategies and policies are reflected in the policies and plans of their respective regions (OECD, forthcoming<sup>[5]</sup>).

#### **Box 4.2. A brief overview of territorial administrative reform in Sweden**

Until 1930, Sweden had 2 532 municipalities, of which more than 500 had fewer than 500 inhabitants. During that period, the map of local governments tended more towards partition than consolidation. In 1952, the number of rural municipalities was reduced from 2 281 to 816. However, in 1959, a Commission of Subdivision Experts established that the previous efforts were insufficient and that new larger urban/rural municipalities should be created. This reform created 282 *kommunblocks* (“municipal blocks”) to foster co-operation between neighbouring municipalities and to facilitate mergers on a voluntary basis later. Between 1964 and 1969, the number of municipalities dropped to 848. Voluntary

amalgamations were replaced by compulsory mergers and the number of local entities continued to fall in subsequent decades. Today, it stands at 290 municipalities.

A gradual and experimental regionalisation process began in 1996 when two counties acquired regional development tasks from the central government, a policy area that was historically managed by the deconcentrated CABs. Regional development responsibilities were progressively transferred to 11 other county councils between 2011 and 2018 before a 2018 government bill extended responsibility for regional development to county councils in all parts of the country (OECD, 2017<sup>[3]</sup>). The gradualist nature of the regionalisation process has meant that while some counties, notably Skåne and Västra Götaland, have had decades to build up their capacity to manage regional development responsibilities, other counties have had less than five years to do so.

Source: Nelson, M. (1992<sup>[9]</sup>), "Municipal amalgamations and the growth of the local public sector in Sweden", <https://doi.org/10.1111/j.1467-9787.1992.tb00167.x>; Lidström, A. (2018<sup>[10]</sup>), "Subnational Sweden, the national state and the EU", <https://doi.org/10.1080/13597566.2018.1500907>; Region Gotland (2017<sup>[11]</sup>), *Gotland in Figures*, <https://www.gotland.se/104323>.

The responsibilities of subnational governments in Sweden are divided into mandatory and voluntary tasks. While the former is strongly regulated, regional and local governments have considerable freedom and flexibility to decide on the voluntary provision of services. Subnational governments also have considerable freedom and flexibility to decide how to provide goods and services (SNG-WOFI, 2018<sup>[12]</sup>). Region Gotland, for example, has almost 200 agreements with more than 300 contractor companies to provide some of the services for which it is responsible.

Sweden's regions have seen their responsibilities grow over time. While originally responsible for health and social services, the role of county councils has been extended to the sphere of regional development, which includes regional growth policy, transport, infrastructure and culture (OECD, 2017<sup>[3]</sup>; forthcoming<sup>[5]</sup>). Regions have responsibilities in healthcare, regional public transport and culture. Recently, they have all acquired responsibilities for regional transport, infrastructure planning, as well as regional development. The latter is a cross-sectoral policy area that intersects with other formal regional responsibilities and sectoral policies that have regional-level implications, skills development and tourism.

Swedish municipalities are the smallest administrative unit and the closest to the citizens. The average municipal population is around 34 000 inhabitants, significantly above the OECD average of 9 700 inhabitants. Municipalities range from 9 to 19 155 km<sup>2</sup> and from 2 450 to 923 520 inhabitants. Municipalities have a long list of responsibilities in all areas of public policy, including social protection, education, urban planning, healthcare (prevention), environmental protection, waste management, water and sewage, local roads and public transport, housing, rescue services and emergencies, social services, leisure and culture (Table 4.2).

**Table 4.2. Distribution of subnational government responsibilities in Sweden**

Responsibility	Regions	Municipalities
General public services	<ul style="list-style-type: none"> <li>• General administration</li> </ul>	<ul style="list-style-type: none"> <li>• General administration</li> </ul>
Public order and safety		<ul style="list-style-type: none"> <li>• Emergency and rescue services</li> </ul>
Economic affairs/transport	<ul style="list-style-type: none"> <li>• Public transport (via a regional public transport authority)</li> <li>• Sustainable regional development</li> <li>• Tourism (optional)</li> </ul>	<ul style="list-style-type: none"> <li>• Public transport (shared with regional public transport authority)</li> <li>• Economic development</li> <li>• Road maintenance</li> <li>• Employment (optional)</li> <li>• Industrial and commercial services (optional)</li> </ul>

Responsibility	Regions	Municipalities
Environmental protection		<ul style="list-style-type: none"> <li>• Environmental protection</li> <li>• Refuse and waste management</li> <li>• Sewerage</li> </ul>
Housing and community amenities		<ul style="list-style-type: none"> <li>• Planning and building issues</li> <li>• Housing (optional)</li> <li>• Energy (optional)</li> <li>• Water supply</li> </ul>
Health	<ul style="list-style-type: none"> <li>• Healthcare and medical services</li> <li>• Primary care</li> <li>• Hospitals</li> <li>• Ambulatory care</li> <li>• Dental care</li> </ul>	<ul style="list-style-type: none"> <li>• Preventive healthcare</li> </ul>
Recreation, culture and religion	<ul style="list-style-type: none"> <li>• Regional Culture Plan</li> <li>• Cultural institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Leisure</li> <li>• Culture (optional)</li> </ul>
Education	<ul style="list-style-type: none"> <li>• Skills/competency supply and skills development</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-school</li> <li>• Primary and secondary education</li> <li>• Vocational training</li> </ul>
Social protection		<ul style="list-style-type: none"> <li>• Care for the family</li> <li>• Childcare</li> <li>• Elderly</li> <li>• Disabled</li> </ul>

Note: Regions are responsible for sustainable regional development. The implementation of their regional development policy needs to be co-ordinated with actions in rural policy, sustainable urban development policy, environmental policy and other sector policies relevant to regional development.

Source: SNG-WOFI (2018<sup>[12]</sup>), *Country Profiles: Sweden*, <https://www.sng-wofi.org/country-profiles/Fiche%20SWEDEN.pdf>.

Local governments in Sweden create and indirectly manage a large number of companies to provide services in areas such as transportation, storage, communications, education, health and social services, among others. In 2020, the activity of state, regional and municipally-owned companies was approximately EUR 444 billion, of which the activity of companies at the subnational level represented 43% (Statistics Sweden, 2021<sup>[13]</sup>). On Gotland, there are 8 public companies, which employ 134 people.

### ***A region and a municipality: The unique case of Gotland***

Unlike the other local and regional governments in Sweden, Gotland has both regional and municipal powers. With approximately 61 000 inhabitants, Gotland is both the smallest region and 1 of Sweden's 40 largest municipalities.

This unique dual condition brought benefits such as certain flexibility and financial autonomy, and offers opportunities such as the possibility of deciding and implementing their own regional development strategies. On the other hand, it implies a greater administrative burden for Region Gotland, which has to take over a large number of responsibilities without always having the necessary human and financial resources to do so.

#### *Regional administration: Structure and competencies*

The regional level of government – Region Gotland – is made up of: an elected regional council, responsible for decision-making in the areas of regional responsibility; the regional executive board, appointed by the regional council and in charge of the execution and supervision of policies; and specialised committees, also appointed by the regional council and charged with advising and assisting

decision-makers and the civil service responsible for policy and service implementation. These three institutions cover tasks in all categories of regional and municipal responsibilities (Table 4.3).

The CAB of Gotland represents the national government at the regional level. It is led by an appointed county governor and is responsible for monitoring and co-ordinating the implementation of national-level strategies and policies in Region Gotland. The distribution of responsibilities in matters of regional development is not always clear between Region Gotland and the CAB. While Region Gotland is in charge of regional development, the CAB must ensure the correct implementation of national-level goals, strategies and policies in areas closely related to regional development, such as regional growth, infrastructure planning, energy and climate, and agricultural and rural development. Historically, Region Gotland and the CAB have had a fluid relationship and effective co-operation. However, as in other parts of Sweden, since the decentralisation of regional development responsibilities to the regional government, clarity in some of the responsibilities has diminished. On Gotland, for example, this is the case with respect to energy matters, sustainable development and the co-ordination of actors in the regional development sphere (OECD, 2021<sup>[14]</sup>).

**Table 4.3. Government institutions and responsibilities on Gotland**

Level	Institution	Authority	Function	Responsibilities
Regional/ Municipal (Region Gotland)	Regional council	Elected	Decision-making	<b>Regional:</b> Health and medical care; Dental care; Public transport; Regional development, Health and safety, Culture.
	Regional executive board	Appointed	Implementation/Supervision	<b>Municipal:</b> Childcare; Schooling; Adult education; Leisure and culture; Elderly care; Care of the disabled; Social care for individuals and families; Rescue services; Street cleaning; Water; Streets and roads; Parks; Recreation, Culture, Ports;
	Specialised committees	Appointed by regional level	Oversight, administration and procurement of services in the area of responsibility	Environmental and health protection; Detailed development planning; Comprehensive planning, land use planning.
National	County administrative board	Appointed by the national government	Monitoring/Co-ordination	Food inspections, animal welfare and general veterinary issues; Regional growth; Infrastructure planning; Sustainable community planning and housing; Energy and climate; Cultural environment; Protection against disaster and emergency preparedness and civil defence; Nature conservation and environmental and public health; Agricultural and rural areas; Fishing; Equality; Integration.

Source: Author's elaboration based on Region Gotland (2017<sup>[11]</sup>), *Gotland in Figures*, <https://www.gotland.se/104323>.

### *Municipal administration: Structure and competencies*

Gotland was not always a single municipality. Before the municipal reforms that began in 1952, the island had 92 municipalities: 1 city (Visby), 1 market town (Slite) and 90 rural municipalities or parishes, many of them with fewer than 100 inhabitants. In the first wave of municipal mergers, Gotland municipalities were grouped into 13 local governments. In 1962, during the creation of the *kommunblocks*, Gotland was divided into three municipal blocks. Later, in the reforms of the 1970s, all entities were consolidated into a single local government, resulting in today's municipal structure. Prior to the completion of the municipal reform,

consideration was given to establishing five municipalities, corresponding to the five secondary school catchment areas on the island. While this option was favoured among smaller municipalities and the CAB, the decision was made to merge all municipalities into a single entity.

This series of territorial administrative reforms led to the gradual, and sometimes not so gradual, adjustment to tasks, with responsibility for the regional and municipal competencies outlined in Table 4.2 being merged into one entity – Region Gotland. In sum, the policy, administrative and public service responsibilities that are generally ascribed to a regional (county) council and to a municipal council, on Gotland, are consolidated into one organisation with the same executive council, i.e. Region Gotland. In addition to generating a unique territorial administrative structure in Sweden, it has also accentuated certain challenges.

To this day, conflicting opinions regarding the administrative structure on the island remain. Tensions mainly revolve around the difficulty in providing service equality across its territory. Within the government, the possibility of administrative reform to better rationalise the provision of services is being discussed and the regional council has already received citizen proposals to sub-divide Gotland, due to the fact that “the municipality is very large” and that “the countryside is affected by the prevalence of Visby” on a frequent basis (Thomsson in Hemse, 2007<sup>[15]</sup>). In the regional government however, there is support for the current administrative structure, as it is believed that, as a single municipality, Gotland has a “stronger voice to the outside world” (Helagotland, 2021<sup>[16]</sup>).

### ***More clarity is needed regarding the assignment of responsibilities among levels of government on Gotland***

There is agreement among Gotland’s different regional development actors that their roles and tasks are not clearly delineated. As discussed above, both Region Gotland and the CAB are mandated to co-ordinate efforts between regional and national actors with regional development responsibilities, which causes overlaps between the decentralised and deconcentrated bodies. In addition, both entities have responsibility for energy and sustainable development areas, which creates accountability challenges. When it is not entirely clear which institution or level of government is responsible for each project or policy, this causes confusion among citizens and can lead to democratic deficits (Allain-Dupré, 2018<sup>[17]</sup>).

According to regional government officials, laws and strategic documents are clear in the distribution of responsibilities but the challenge lies in the instructions that the central government gives to government agencies with a presence in the regions (CAB and national agencies). There is no clear multi-level governance mechanism to implement the different regional development strategies and policies in a co-ordinated manner. Therefore, it is still necessary to further clarify the governance mechanisms for and attribution of responsibilities in the regional development strategies, the relationship among levels of governments, the way to co-operate between national and regional agencies and, above all, the specific instructions and tasks of each actor.

The joint work around Gotland’s regional development strategy – Our Gotland 2040 – in whose design and implementation the CAB participates as a member of the steering group, seems to have served to improve co-ordination between Region Gotland and the CAB. This is an example of how an active and permanent dialogue can serve to enhance the conditions of co-operation. Currently, there are two instances serving as effective dialogue mechanisms on Gotland. One is a co-ordination forum between Region Gotland, the CAB, the Employment Agency, the armed forces and Uppsala University; the other is a forum that the CAB holds with all authorities on Gotland and some state-owned enterprises, and to which Region Gotland is invited. Region Gotland should make use of these instances in order to, first, collaboratively identify spaces in which lack of clarity and overlaps occur in specific tasks and, second, communicate to the Swedish government an action plan to clarify the instructions and spaces for the action of each institution. The presentation of the results of this working group could be made before representatives of the central

government or in a shared instance of national scope, such as the National Forum for Sustainable Regional Growth and Attractiveness.

The work to clarify the distribution of responsibilities between Region Gotland and the national agencies with a presence on the island can be strengthened in a number of areas (Allain-Dupré, 2018<sup>[17]</sup>; 2019<sup>[18]</sup>). For example, it is somewhat problematic to clearly distinguish whether it is the region or the municipality that is responsible for delivering specific public services, as Region Gotland delivers both. In some instances, it is also still unclear who is responsible for certain areas of regional development policy, since national (CAB) and regional (Region Gotland) levels of government share responsibilities in areas such as infrastructure and planning, energy and climate, cultural environment, etc. Defining more clearly which responsibilities each actor has in each policy sector would help to strengthen accountability towards citizens.

Not only is it important to clarify who does what but it is also important to ensure that each level of government is clear on its functions in particular areas (e.g. regulations, co-ordination, etc.) (OECD, 2019<sup>[18]</sup>; 2018<sup>[17]</sup>). Some co-ordination problems on Gotland occur between the regional government and national agencies when, after successful collaborative work in developing a roadmap for a specific project, there is little clarity on the specific instructions that each actor should follow or a governance system for the project has not been agreed (e.g. the Energy Pilot Gotland Project being implemented in collaboration with the Swedish Energy Agency) (OECD, 2021<sup>[14]</sup>).

Building and maintaining adequate vertical co-ordination mechanisms can also generate further clarity in responsibilities. Along with creating a working group mandated to analyse and communicate the main challenges in terms of distribution of responsibilities among levels of government on Gotland, the region and the national government should consider the possibility of consolidating and maintaining over time the functioning of a body of this type. The objective would be to keep an institutional structure that facilitates dialogue on these matters among the levels of government, thus reducing the time to resolve conflicts such as overlaps or lack of clarity in the implementation of regional development strategies or investment projects.

## Financing regional development on Gotland

Gotland's regional development depends on the government's fiscal capacities and its ability to generate and use a variety of public investment financing sources, including national grants, own-source revenues and EU funds. As a region and a municipality that is also an island economy driven by tourism and micro businesses and small- and medium-sized enterprises (SMEs), Region Gotland faces some specific challenges with respect to generating own-source revenue and its spending is heavily concentrated in healthcare and education. Advancing with its attractiveness strategy and reinforcing its administrative capacity for EU (or other public investment) funds could combine to help build its own-source revenue base and generate a strong platform for optimising public investment financing for regional development.

### ***Fiscal frameworks supporting Region Gotland***

As in most countries, Sweden's subnational governments are financed by a combination of grants and subsidies from the national government, tax revenues (shared and own-source), user charges and fees, income from other assets (e.g. property) and other revenue sources (Table 4.4). Grants and subsidies include block and earmarked grants as well as revenue from the fiscal equalisation system. At a subnational level, block grants and own-source revenues, including taxes, user charges and fees, as well as income from other assets, tend to offer regional and local authorities the greatest flexibility to fund their mandates and priorities, including regional development. In Sweden, this flexibility is reinforced by the considerable autonomy and flexibility enjoyed by subnational governments to set their tax rates. While this

could result in tax competition (different regions or municipalities setting lower tax rates than their neighbours), this is limited as rates remain relatively similar throughout the country. By 2022, rates will be 32.3% on average, with an average of 20.7% at the municipal level and 11.6% at the regional level with a standard deviation of 1 and 0.3 respectively. On Gotland, there is a single local tax rate of 33.6%, relatively close to the national average (OECD, 2021<sup>[14]</sup>).

The dual region/municipality status of Gotland makes the comparison of revenue and public expenditure with other subnational governments in Sweden complex. In most cases, data on public finances on Gotland are consolidated at the municipal level, while for Sweden's other territories, there is information for both the regional and municipal levels. However, some comparisons of Gotland's performance can be made with that of the rest of the municipalities and regions.<sup>1</sup>

#### Table 4.4. Subnational government revenue in Sweden, by category

As a share of total subnational government revenue and as a share of gross domestic product (GDP)

Type of revenue	Percentage of subnational government revenue	Percentage of GDP
Tax	50.4	13.0
Grants and subsidies	38.8	10.0
Charges and fees	8.7	2.2
Income from assets	1.2	0.3
Other	1.0	0.2

Source: SNG-WOFI (forthcoming<sup>[19]</sup>). *Country Profiles: Swede*, <https://www.sng-wofi.org/country-profiles/Fiche%20SWEDEN.pdf>.

#### *Gotland's revenue base presents a mixed picture*

On the revenue side, the picture on Gotland is positive but mixed. It has seen an increase in its overall revenues, benefitting from the new fiscal equalisation system, and it has a good degree of fiscal autonomy given its ability to set tax rates, the high proportion that taxes represent in the fiscal envelope and the fact that slightly over 10% of its income comes from user charges and fees and other sources. At the same time, its revenues in almost all categories are less than what general subnational revenue represents as a percentage of the total government revenue system, and its regional and local tax revenues remain lower than the national average, with the discrepancy generally increasing since 2016.

Gotland's total revenue stream increased by 6.3% between 2019 and 2020, mainly due to a 25% increase in transfers and a 37% increase in earmarked grants from the national government (Region Gotland, 2021<sup>[20]</sup>), primarily associated with the COVID-19 pandemic and the new equalisation system launched in 2020. Despite this, in 2020, Gotland's revenue from grants and subsidies was less than the general percentage of subnational government revenue for this category. Combined, grants and subsidies represented 23% of its total revenue. If one adds earmarked grants (an additional 10% of the total), grants and subsidies made up about 33% of Gotland's revenue base – lower than the national average of 38.8%. At the same time, its regional and municipal tax revenues represent 54% of its total income, a higher proportion than the national average for subnational governments in Sweden (Table 4.5). While this can be positive in terms of fiscal autonomy, such dependence is significant in the case of Gotland. Local taxes are predominantly composed of personal income tax (PIT), which could pose a difficulty for generating more own-source revenue given the challenges Gotland faces in building its tax base.



**Table 4.5. Gotland municipal revenue, by category**

EUR (million) and as a percentage of total revenue, 2020

Category	EUR (million)	Percentage (%)
Taxes	384.0	54.4%
General grants/Equalisation	164.4	23.2%
Earmarked grants	70.6	10.0%
Charges and fees	49.6	7.0%
Sales of goods and services	8.9	1.3%
Rents and leases	10.9	1.5%
Other	18.8	2.7%
Total	707.2	100%

Source: Region Gotland (2021<sub>[20]</sub>), *Årsredovisning 2020 (Annual Report)*, <https://www.gotland.se/%C3%A5rsredovisning2020>.*Sweden's strong fiscal equalisation system benefits Gotland*

Gotland benefits from Sweden's fiscal equalisation system. As a region, Gotland receives the most money per capita from the regional equalisation system, with EUR 950 per inhabitant in 2020, 116% more than the national average of EUR 441, with the greatest amounts coming from the cost equalisation grant and the structural grant. In both categories, Gotland received 289% and 681% more per capita than the national average respectively (Table 4.6). The first corresponds to a levelling that the system makes from the calculation of the structural costs incurred by the regions. The second is intended to reinforce municipalities and regions with a small population and/or labour market difficulties (Tingvall, 2007<sub>[21]</sub>).

**Table 4.6. Income per capita from regional equalisation system, Gotland vs. all regions, 2020**

Category	Gotland (EUR)	National average (EUR)	Difference (EUR)	Difference (%)
Income equalisation	605	363	242	67
Cost equalisation	230	59	171	289
Structural grant	138	18	121	681
Transitional grant	0	11	-11	-
Regulation grant/fee	-23	-23	0	0
Total	950	441	509	116

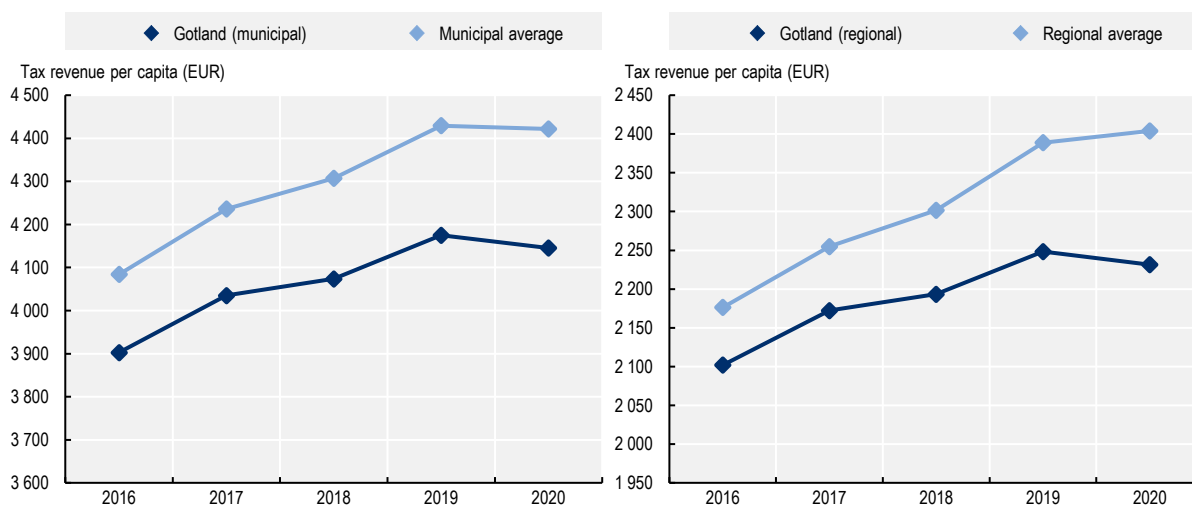
Source: Statistics Sweden (2021<sub>[22]</sub>), *Economic Equalisation for Municipalities and Regions, Year 2005-2021*, [https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START\\_OE\\_OE0115/KomEkUti/](https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START_OE_OE0115/KomEkUti/).

Compared to municipalities of a similar size, such as Falun, Norrtälje, Östersund and Trollhättan, Gotland also receives more financing from the equalisation system (Statistics Sweden, 2021<sub>[23]</sub>). While the equalisation system benefits Gotland, particularly as it compensates for areas with small populations and difficult labour market situations, it is also something of a double-edged sword. If the system undergoes further change in ways unfavourable to Gotland and/or when Gotland's population increases or the labour market situation shifts in a direction that reduces its equalisation income, it risks losing revenue. In theory, this loss would be compensated thanks to an increase in permanent island residents and a larger or stronger enterprise base, increasing consumption and generating a positive gain in taxes, user charges and fees, and possibly other types of grants. Yet, if the increase in population or adjustments in the labour market situation do not offset a negative shift in the equalisation grant, Gotland risks a larger revenue gap.

*Regional and municipal tax revenue differentials are growing compared to the national average*

Between 2016 and 2020, Gotland's average municipal and regional tax revenue increased overall. This being said, this revenue remains lower than the national municipal and regional averages, and dropped slightly from 2019 to 2020, although this may be due to the COVID-19 crisis (Figure 4.1). In addition, the gap between the national and Gotland averages, particularly in the regional average, is growing. In 2020, Gotland's regional tax revenue was 7% lower than that of other Swedish regions. It collected an average of 5% less per capita than the national average of other regions, about 5% less per capita in municipal taxes compared to other municipalities. In both cases, the difference has increased year by year.

**Figure 4.1. Municipal and regional tax revenue per capita, Gotland vs. national averages, 2016-20**



Source: Statistics Sweden (2021<sup>[24]</sup>), *Income Statement for Municipal Groups, SEK per Capita, Current Prices by Region, Income Statement and Year*, [https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START\\_OE\\_OE0107\\_OE0107A/ResultKcr/](https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START_OE_OE0107_OE0107A/ResultKcr/); Statistics Sweden (2021<sup>[25]</sup>), *Income Statement for Regions, SEK/Inhabitant, Current Prices by Region, Income Statement and Year (Tax Revenues)*, [https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START\\_OE\\_OE0107\\_OE0107C/ResultLTing/](https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START_OE_OE0107_OE0107C/ResultLTing/).

While the divergence may be due to the COVID-19 pandemic and its impact on tourism, the overall difference may also be due to volatility in tax revenues generated by volatility in the tourism sector, a high proportion of secondary-home residents and difficulties increasing its permanent resident housing stock and expanding the business-base. This would affect the levels of local taxes, property taxes and business and income taxes. For example, Region Gotland's per capita revenue from local taxes was approximately 6% less than the national average and, from property tax, it was 19% less in 2020.

*As a region and municipality, Gotland faces a spending disadvantage*

Region Gotland executes the same high-cost responsibilities, such as regional development, healthcare and public transport, as larger, wealthier or more populated regions, but with fewer resources, and the added responsibilities and associated costs of municipal competencies. In general terms, adding together all regional and municipal and public spending, over 80% of Region Gotland's spending is on healthcare and education (Table 4.7).

**Table 4.7. Total expenditure per capita by activity, Gotland, 2020**

Activity	Total (EUR)	Share of total expenditure (%)
Health	401	51
Education	246	31
Culture	24	3
Infrastructure	43	5
Other	0.1	<1
Total	784	100

Source: Statistics Sweden (2021<sup>[26]</sup>), *Costs and Incomes for Municipalities by Region and Activity. Year 2011-2020*, [https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START\\_OE\\_OE0107\\_OE0107B/KostnDR/](https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START_OE_OE0107_OE0107B/KostnDR/).

In some critical spending areas, Regional Gotland spends more than other regions in Sweden and yet, as a municipality, it is spending less. According to 2020 figures, Region Gotland spent 9% more per capita on healthcare than other regions which, due to the size of public investment in healthcare, translates into general costs 7% higher than the national average (Statistics Sweden, 2021<sup>[27]</sup>). While Gotland benefits from collaboration with the Stockholm region in healthcare-service provision, its small population and island status continue to affect spending in the sector.

At the municipal level, Region Gotland spends below the national average in all spending areas, except elderly care. On the one hand, this lower level of spending might be due to lower spending needs. Yet, this seems unlikely given its remoteness, population density and demographic composition. On the other hand, it could also reflect underfunded mandates – meaning that Region Gotland may have insufficient resources to meet all of its spending responsibilities as a region and municipality – and thus must spread funds more thinly across spending assignments than subnational governments that are separated into two distinct entities.

### *Addressing Gotland's fiscal challenges*

The main challenges that Gotland faces in terms of public finance are a small tax base, decreasing tax revenues and high dependence on a sector – tourism – that can be unpredictable. The seasonality of much of Gotland's economic activity also adds to the already high costs in infrastructure and service provision that come with being an island economy, with a relatively small population and low density. Overall, it appears that Region Gotland faces challenges in fully complying with its long list of regional and municipal responsibilities. It allocates more than the Swedish average of subnational government expenditure to healthcare, 51% vs. 26.8%, and education, 31% vs. 21.8% (Statistics Sweden, 2021<sup>[26]</sup>; OECD, 2021<sup>[28]</sup>) leaving little space for additional required spending in other areas (e.g. general services, social services, economic affairs or other areas). It is necessary, then, to find ways to strengthen the flow of fiscal income, ensure the availability of sufficient resources to provide services equitably throughout the region and ensure equitable social, economic and cultural development throughout the territory.

To meet fiscal challenges, Region Gotland needs alternatives to conventional solutions. In 2022, local tax rates on Gotland (municipal and regional combined) will be 33.6%, while the national municipal average will be 33.2% (Statistics Sweden, 2021<sup>[29]</sup>). Therefore, increasing tax rates or implementing new local taxes to increase tax revenue could be counterproductive and generate negative effects such as driving away wealthy migrants and new businesses. Also, the fiscal equalisation system works well in Sweden and has recently been modified to address some shortcomings. Gotland benefits from these mechanisms, so the option of reforming them would not be logical. Therefore, the issue is to identify ways to develop Gotland's income and tax bases without generating counter-effects that could end up affecting these flows. One option is to continue advancing with its attractiveness initiative.

### ***Building Gotland's regional attractiveness can contribute to its fiscal health***

Gotland is a region with great potential. With a privileged natural environment, a significant and attractive offer of tourist services, a heritage city (the Hanseatic town of Visby), key economic activities (food, agriculture and natural resources) and rich cultural diversity, Gotland is sometimes called an island paradise and is a significant tourist attraction in the middle of the Baltic Sea. For this reason, Gotland is a place of retirement and a second home for both Swedish and international families.

As part of its regional development strategy, Gotland is actively trying to build its attractiveness as a place to visit, live and work. However, a number of challenges confront its ability to do so. With regard to tourism, which plays an important role in supporting the local economy, the tourist season is concentrated in the summer months. This seasonality makes it harder to attract tourists at other times of the year. With regards to attracting permanent residents, Gotland continues to battle the perception that its labour market offers a lack of employer diversity and limited opportunities for professional development. With regards to business attractiveness, Gotland needs to do more to nurture a willingness among its micro business and SMEs to expand.

Elements such as good public transport and easy access to the region, secure and affordable electricity and water supply, high levels of Internet connection, attractive living conditions and a good environment for entrepreneurship form the basis of Gotland's attractiveness initiative, which is embedded in its regional development strategy. The aim is to: improve accessibility; stimulate local development outside of Visby; strengthen the business community; encourage students to study on Gotland and remain in the region after completing their studies; and create favourable conditions for construction and access to housing. Doing so could have the additional benefit of strengthening the local and regional economy, including building the tax base and smoothing out any revenue (and spending) volatility.

Region Gotland's unit for sustainable growth has been implementing a regional branding strategy since 2020 that, through a website that offers general information for visitors, prospective residents and residents, as well as communication tools for local businesses, seeks to align actions among regional stakeholders to build and communicate an attractive image of the region (Box 4.3). This strategy is on the right track to support the continued development of a strengthened regional image (Region Gotland, 2021<sup>[30]</sup>).

A key message that is highlighted by the branding strategy is that Gotland is open for business and leisure all year round, in order to break with perceptions of it as a summer-only tourism destination. In this regard, the branding strategy has also sought to promote alternative tourism experiences such as sustainable tourism, which may appeal to holidaymakers who are less sensitive to seasonality and choose their holiday destinations based on other factors. Policy makers should couple this branding strategy with new measures to reduce seasonality, such as helping businesses develop and grow attractive tourism services during the winter time. Niche regional festivals and events, often with close links to the tourism destination, (such as culinary, literary, adventure sports and music experiences – e.g. Glastonbury music festival in the United Kingdom) might be one way to attract tourists to Gotland at non-seasonal times of the year (OECD, 2020<sup>[31]</sup>). Overall, this is one of the most challenging aspects of tourism and a number of countries are grappling with the issue, including Croatia, Iceland, Malta and Slovenia.

The most prominent message that is highlighted in the branding strategy is that Gotland is a place of opportunities. While Gotland's permanent resident population has been growing in recent years and is at a record high, the population increase has been driven by older or retired rather than working-age people, which constrains the local tax base. Part of the relative reluctance of working-age people to move to Gotland may be perception-based. Recent surveys have shown that less than half of migrants and only one in four emigrants from Gotland have a positive perception of it as a place to work, with many citing an unattractive labour market and the lack of a range of employers across sectors as key factors in this regard

(Novus, 2020<sup>[32]</sup>). It is likely that this predominantly negative view by Gotlanders of the region's labour market is shared at least to some extent by mainland Swedes.

In order to challenge this perception and encourage more working-age migration to the island, Region Gotland's unit for sustainable growth is currently running a 12-month communication campaign, which focuses on highlighting labour market opportunities in the region across different sectors, targeting residents and prospective residents alike. In addition to improving the perception of Gotland as a place of professional opportunities through branding, policy makers should create new incentives for the arrival of businesses in new industries or industries related to those already on the island, in order to broaden labour market opportunities for prospective and current residents.

A third message that is highlighted in Gotland's regional branding strategy is that Gotland is a good place to open and grow a business. In particular, the regional branding highlights the role of Gotland Grow in providing business support services to entrepreneurs looking to start or grow their businesses on the island. This is particularly salient to strengthening Gotland's tax base, given that many of Gotland's small businesses express limited willingness to expand their operations. In addition to knowledge-based support, policy makers may also consider providing incentives such as tax benefits to Gotland-based businesses that either wish to launch or expand their operations (OECD, 2021<sup>[14]</sup>).

#### **Box 4.3. *Livet på Ön*: Gotland's regional branding strategy**

In 2021, the Region Gotland unit for sustainable growth launched a regional branding strategy to boost the image of the region and attract tourists and potential new residents and businesses to the island. On the Gotland.com website and through the Open Gotland mobile application, Region Gotland offers a wealth of information about the attractions of the region and the different ways to experience them, under the concept *Livet på Ön* (Life on the Island). In a set of information samples and real stories, the website offers information on: i) what is happening on the island; ii) how to visit the island and its surroundings; iii) tips for planning a trip to Gotland; iv) highlights of cultural life on the island (activity in rural parishes, arts, gastronomy, etc.); v) who works on the island; and vi) how to work on the island. For this, the strategy and the website are structured around a series of messages:

- Gotland is a place of opportunities (main message).
- Gotland is an attractive island with lots of living space (main message).
- On Gotland, you can do most things and live unique experiences.
- Gotland is open all year round.
- Gotland is a good place to run a business.

With regard to the last bullet point, Gotland.com offers a couple of tools for businesses on the island. On the one hand, the Region Gotland unit for sustainable growth created a relay account on Instagram (@\_livetpaon\_), in which residents from all walks of life (including entrepreneurs) have the opportunity to highlight the life they lead on the island, including sharing information about their businesses. There is also a part of the Gotland.com website – Gotland Grow – that provides guidance to entrepreneurs interested in starting or expanding a business on the island. On the other hand, Gotland.com hosts a toolbox for local actors. This toolbox brings together information grouped into 11 categories, in which the island's businesses can access the vision and key messages of the strategy, the core values of the desired image, the positioning strategy, a guide on how to communicate, and digital files with a regional logo in view of unifying the image of the island. Users can also create a profile on the platform to access free material (photos, videos, etc.) and participate in the development of the strategy.

Source: Region Gotland (2021<sup>[30]</sup>), *Livet på Ön*, <https://gotland.com/>, date accessed: 1 May 2022.

Along with the implementation of the actions in the regional development strategy and continually deploying the regional branding strategy, it would be important for Region Gotland to carry out a holistic assessment of the current state of Gotland's regional attractiveness, evaluate the creation of concrete benefits schemes to incentivise newcomers and implement strategic actions to better position the key messages of the branding strategy among specific stakeholders.

For the assessment, Region Gotland could use the diagnostic tool the OECD is currently developing that helps regions and countries assess their regional profile for attracting investors, talent, visitors and foreign markets. This tool establishes 6 areas and 14 dimensions to assess the level of regional attractiveness. These areas and dimensions are: economic attractiveness (economy, innovation, labour market); visitor appeal (tourism, cultural capital); land and housing (land, housing); resident well-being (social cohesion, education, health); connectedness (digitalisation, transport); and natural environment (environment, natural capital). Each of these dimensions is made up of a set of indicators that help to quantify regional attractiveness in each specific aspect. In the digitisation dimension, for example, indicators include the share of households with high-speed Internet access and the level of fibre optic penetration in buildings in the region. The tool could help Region Gotland to evaluate its regional attractiveness and the perception that people and businesses have of the island both in other parts of Sweden and abroad.

In addition to supporting initiatives on building innovation and entrepreneurship, such an assessment could help identify whether there are sufficient incentives to attract new businesses and residents and if benefit schemes need to be adjusted, introduced or eliminated. It could also further identify how specific initiatives have promoted the region's attractiveness – for example, to identify whether the “Optic fibre to all houses on Gotland” project contributed to regional attractiveness and, if so, how to better communicate its results. In order to strengthen attractiveness in different areas and dimensions, some potential actions are suggested in Table 4.8, using as a basis the OECD's 14 dimensions to assess territorial attractiveness. Some of these are proposed in the previous chapters of this report.

**Table 4.8. Potential actions to enrich Gotland's regional attractiveness**

Area	Dimension	Potential actions
Economic attractiveness	Economy	Evaluate tax benefits for new businesses and growth opportunities for businesses in strategic industries
	Innovation	Strengthen horizontal co-operation with municipalities and regions for better connectivity between local and regional innovation hubs
	Labour market	Create incentives for the arrival of businesses in new industries (strategic areas other than tourism and agriculture) and promote the creation of high-quality jobs
Visitor appeal	Tourism	Reduce seasonality by developing attractive tourism services for the wintertime
	Cultural capital	Build on the rich cultural capital of rural parishes and local communities
Land and housing	Land	Evaluate and reform land use policy to attract newcomers
	Housing	Develop diverse housing solutions to attract students and young entrepreneurs, and evaluate ways to mitigate the impact of second homes on housing prices
Resident well-being	Social cohesion	Increase availability and access to public services throughout the island
	Education	Assess primary school performance Offer scholarships to university students and families with school-aged children
	Health	Ensure that all urban and rural areas in the region have good access to healthcare
Connectedness	Digitalisation	Communicate results of the project “Optic fibre to all houses on Gotland” (85% penetration rate) Ensure stable energy supply throughout the island
	Transport	Advance the co-operation in public transport with Mälardalsrådet
Natural environment	Environment	Brand and communicate Gotland's environmental assets and attractions
	Natural capital	Promote eco- and agro-tourism activities

Source: Author's elaboration, based on Charbit, C. (2021<sup>[33]</sup>), “What makes a region attractive in the new global environment? How to measure and monitor”, <https://www.oecd.org/regional/Presentations-regional-attractiveness.pdf>.

Gotland's regional attractiveness strategy is also in line with Sweden's Trade and Investment Strategy and its strategic objective of increasing Sweden's attractiveness to foreign investments, skills, talent and visitors (Government Offices of Sweden, 2019<sup>[34]</sup>). Therefore, there are potential collaboration opportunities and/or co-financing mechanisms with national agencies to implement mutually beneficial initiatives.

A robust and well-designed communication plan is a crucial aspect of the success of a regional branding strategy; it is the key to transforming the image of a region and achieving the objectives of attracting and retaining the population and businesses. Region Gotland has made notable progress with Gotland.com and the *Livet på Ön* concept and has developed some of the most important elements, such as a shared vision and core values, a set of key messages and alternatives for collaboration with local stakeholders. Nevertheless, it is necessary to complement these efforts with actions such as the position of key messages in domestic and foreign media, and the participation of regional representatives in business fairs and entrepreneurial circles, among others.

This series of recommendations can be grouped around the following actions:

- **Identify target groups and establish benefits to attract people and businesses:** Identify demographic profiles (e.g. age groups, backgrounds, etc.) and strategic industries (e.g. information technologies, design, manufacturing, etc.). Define target groups and messages that resonate strongly with them. Also, evaluate the possibility of implementing fiscal or other benefits for the installation of new businesses in key industries and benefit programmes (housing benefits, scholarships, etc.) for the relocation of families, students and young entrepreneurs.
- **Design a communication plan with specific and concrete actions:** Bring together various regional stakeholders and co-design a roadmap with objectives, actions, deadlines, a monitoring methodology and measuring indicators. Actions included in the plan must aim to promote the positive regional aspects identified in the previous phases and address the negative ones by promoting benefits.
- **Implement benefit schemes and communication plans and evaluate systematically:** Carry out assessments to evaluate the results of the strategy, combining quantitative and qualitative data, and considering the participation of representatives of businesses and the local community, native-born and newcomers. Indicators could include: the number of new companies in the region, changes in wages over the years, job creation, purchasing power trends and consumers' confidence, among others.

A successful example of a communication campaign to strengthen regional attractiveness is the case of Orange County in the United States and the campaign that was carried out by the Orange County Business Council (OCBC) in the early 2000s. This council, a public-private entity formed mainly by representatives of the private sector, implemented a strategy to attract new businesses to the county in 5 strategic industries, with the aim of boosting the regional economy and recovering economic activity after a crisis in the mid-1990s. Based mainly on industry-targeted communication actions, the OCBC, in collaboration with the county government, transformed the image of the county and ultimately created the conditions for a marked improvement in economic activity and the environment for doing business in the county. A key element of the strategy included the tailoring of bespoke communication messages to appeal to different industry sectors, thereby significantly boosting the local attractiveness of Orange County and stimulating local economic development (Kero, 2002<sup>[35]</sup>).

### ***Reinforcing public investment in Gotland's regional development***

To support the implementation of its regional development strategy and associated initiatives, Region Gotland receives a general government grant. In addition, it deploys a variety of EU funds. These include funds from Interreg, HORIZON 2020 and Cohesion Policy Funds, primarily European Regional

Development Funds (ERDF), European Social Funds (ESF and ESF+ in the 2021-27 programming period) and the European Agriculture Fund for Rural Development (EAFRD), using the LEADER method.<sup>2</sup> In the 2014-21 programming period, Gotland received approximately SEK 100 million in ERDF funds and SEK 45 million in ESF. In 2014-20, the region co-financed up to 90% of ERDF financing, increasing the available funding to almost SEK 200 million, with an additional almost SEK 28 million for ESF (OECD, 2021<sup>[14]</sup>).

The region is confronted by a set of common challenges with respect to EU funds. The first is a need to grow the beneficiary pool and support beneficiary capacity in developing and implementing projects, including funding the co-financing requirement. Only a limited number of companies and organisations on the island meet the conditions to apply for EU funds. Also, there is difficulty in meeting the programme requirements, especially the co-financing criteria. While Region Gotland offers support in this area, it is not always sufficient, and potential beneficiaries have difficulties obtaining co-financing from national or international sources. This has been addressed, at least in part, through the Sustainable Gotland initiative. Funded entirely by the EU, with no associated co-financing, this programme helped attract new beneficiaries to EU funding opportunities (OECD, 2021<sup>[14]</sup>). The next programming period will indicate whether the pool of beneficiaries can continue to grow, with or without a programme like Sustainable Gotland. The regional government may need to identify other means to manage this challenge, for example by building its own reserves and a portfolio of fully-financed project possibilities, and/or working with beneficiaries and possible national or international financing sources to match needs with possibilities.

The second challenge is a need to ensure that funds can help advance the region's objectives as articulated in the regional development strategy in a manner reflective of the region's realities and constraints while also aligning with European programming and its requirements. In the 2021-27 period, there is a greater emphasis on thematically focused initiatives, especially those associated with the region's smart specialisation strategy (S3). To meet the requirements, the region will likely need to sharpen its criteria for project calls, for example by ensuring a broad definition of innovation is applied to innovation-oriented projects. At the same time, it will need to ensure the calls are designed in such a way that they meet the capacities and needs of beneficiaries.

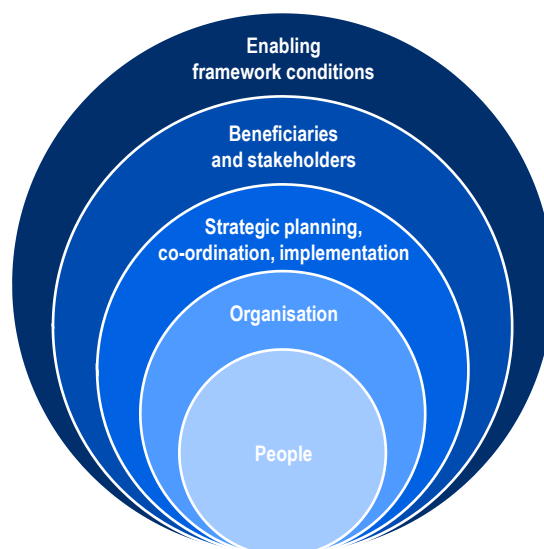
A survey to regional stakeholders carried out by Region Gotland showed that, although local beneficiaries of the EU funds are satisfied with the financial assistance provided, they also agree that more assistance is needed in: i) the application processes for programmes from EU funds; ii) the operation of the budgets; iii) reporting to the funding agencies; iv) more information on calls and applications; and v) greater knowledge about the integration of sustainability practices in project management. Through such a survey, Region Gotland is taking an active role in the pre-call phase to better understand beneficiary wants, constraints and ambitions. It may need to take additional steps to help ensure the beneficiary's ability to submit well-prepared projects. It also may need to be even more creative and innovative in project-call design. For example, if there is a desire for beneficiaries to partner more actively with innovation hubs on the mainland or internationally, then Region Gotland may need to build its own capacity to develop the tools and design innovative project calls to advance this type of initiative.

A third challenge is a capacity within Region Gotland itself. Despite the will to work more extensively and effectively with EU funds and participate in international exchanges, the executive administrative board of Region Gotland has limited resources in terms of time and staff to work with stakeholders on the management and implementation of funds. In Region Gotland, there is no co-financing office and a group of three to five officials from the regional government offer assistance to local stakeholders among other day-to-day functions. While Region Gotland is not a managing authority for EU funds, reinforcing its administrative capacity to manage funds could help the region address the impact of these challenges and strengthen its ability to effectively absorb this form of investment financing. Accomplishing this can take time and require action in a variety of dimensions. It requires reinforcing the relationship (i.e. partnership) with stakeholders and beneficiaries and effectively advising them in the application, execution and accountability processes associated with projects financed with EU funds.



It also means looking inward at the Region Gotland's system supporting the management of EU funds. To this end, Region Gotland could follow some of the recommendations of the OECD and European Commission (EC) in terms of capacity building for the management of EU (and other regional development) funds (OECD, 2020<sup>[36]</sup>). The analytical framework developed by the OECD to support administrative capacity for EU funds highlights the various areas that may require attention (Figure 4.2), particularly with respect to organisation, strategic planning and beneficiary and stakeholder support.

**Figure 4.2. Analytical framework for building administrative capacities in the use of EU funds**



Source: Adapted from OECD (2021<sup>[37]</sup>), *Administrative Capacity Building Self-assessment Instrument for Managing Authorities of EU Funds under Cohesion Policy*, [https://www.oecd.org/regional/regionaldevelopment/ACB\\_Self\\_assessment\\_Instrument.pdf](https://www.oecd.org/regional/regionaldevelopment/ACB_Self_assessment_Instrument.pdf); OECD (2020<sup>[36]</sup>), *Strengthening Governance of EU Funds under Cohesion Policy: Administrative Capacity Building Roadmaps*, <https://doi.org/10.1787/9b71c8d8-en>.

To reinforce administrative capacities for EU funds, the OECD identified a series of actions that could be valuable, particularly when adapted to specific institutional needs and contexts (Box 4.4). Region Gotland could consider identifying its administrative capacity gaps in EU fund management with the OECD *Administrative Capacity Building Self-assessment Instrument* (2021<sup>[37]</sup>). For people management, it could map and identify desired competencies for effective management of EU funds and design a long-term strategy to develop these capacities through existing tools, or by developing new ones. The EC Competency Framework could support this. Additionally, the regional government might want to try out new approaches to attracting and retaining skilled candidates and employees and develop strategic workforce planning to overcome some of the human resource challenges faced in the 2014-20 programming period. For example, attracting additional, qualified civil servants may mean giving consideration to helping candidates also identify employment opportunities for their spouses.

In the area of strategic programme implementation, Region Gotland could adopt a bottom-up approach to address information and knowledge gaps among beneficiaries by establishing permanent communication and knowledge-sharing with existing and potential beneficiaries and other stakeholders in the region. Also, it could help to build beneficiary capacities by streamlining interaction processes and partnering with beneficiary-support organisations from mainland Sweden. This could also strengthen the advisory capacities of the regional staff. In addition, it may also be desirable to have resources – such as an office or a platform – dedicated to advising on the design of projects requesting EU financing. For this, it is key that the national government participates in the evaluation of the current situation and the possibility of supporting Region Gotland in such an endeavour.

#### **Box 4.4. A selection of recommendations from the EC pilot project “Frontloading administrative capacity building for post-2020”**

Five managing authorities, three of which were national and two were regional, participated in a pilot project implemented by the EC and the OECD to determine the main administrative capacity challenges faced by these authorities and potential actions to overcome these challenges. The 2020 report, *Strengthening Governance of EU Funds under Cohesion Policy: Administrative Capacity Building Roadmaps*, provides a series of recommendations, some of which can help Region Gotland in managing European funds and are highlighted below.

##### **Recommendations for Challenge Area 1: People and organisational management**

- Develop a skilled, adaptable workforce with the right mix of competencies for effective EU funds management, by mapping and identifying the existing and desired competencies for effective EU funds management and exploring how existing tools can help to develop these skills.
- Attract and recruit candidates with the right skills, by employing new tools to attract candidates beyond traditional pools and adapting both recruitment and onboarding processes.
- Improve the long-term and strategic orientation to learning and development, by conducting gap analysis, broadening the mix of learning options available to public servants and aligning learning and development initiatives with a competency framework.
- Develop strategic workforce planning capabilities to meet the challenges of the 2021-27 period, by strategically positioning and monitoring human resources.

##### **Recommendations for Challenge Area 2: Strategic operational programme implementation**

- Address information gaps, improve knowledge-sharing and expand communication, by building a stronger bottom-up approach to information sharing with beneficiaries and ensuring regular and well-structured communication with them.
- Effectively build the capacity of beneficiaries, by streamlining the process of interacting with and supporting beneficiaries, improving the frequency and quality of the guidance, promoting regular and constant information exchange, and partnering with beneficiary-support organisations.
- Actively engage with a broad base of external stakeholders, by building multi-stakeholder dialogue platforms for broader and more effective stakeholder input.

Source: Adapted from OECD (2020<sup>[36]</sup>), *Strengthening Governance of EU Funds under Cohesion Policy: Administrative Capacity Building Roadmaps*, <https://doi.org/10.1787/9b71c8d8-en>.

Furthermore, Region Gotland could evaluate the scope for launching a multi-stakeholder dialogue platform to facilitate more broad-based and effective stakeholder input, including with the Swedish Agency for Economic and Regional Growth, other regions and municipalities, beneficiaries from the public and private sectors as well as civil society organisations, plus other external stakeholders such as consultants, academia, business associations (e.g. for entrepreneurs or SMEs), etc. This group could work on identifying solutions to common problems but it could also operate as a fluid network of actors who could work together to co-ordinate efforts and overcome the obstacles presented by the need for co-financing or the lack of technical capacities, as well as to generate joint projects and/or identify appropriate funding opportunities, including those that require projects of a larger scale than currently practised on Gotland.

## Strategic frameworks for regional development in Sweden and Gotland

### *Strategies and institutions involved in regional development*

According to national legislation, Sweden's regions have a permanent mandate to lead and co-ordinate regional development issues at the territorial level (OECD, forthcoming<sup>[5]</sup>). At the same time, however, regional development policy making in Sweden is governed and influenced by many actors and a diverse set of strategic documents in different sectors and levels of government. Sweden's primary strategic framework for regional development is its *National Strategy for Sustainable Regional Development throughout Sweden 2021-2030* (Swedish Government, 2021<sup>[38]</sup>). This strategy, published in early 2021, articulates strategic areas and priorities as guidelines for the design and implementation of regional development strategies throughout the country. It also establishes state funds with respect to regional development, and that it has to be implemented in co-ordination with national policies such as the rural policy, the urban development policy, the climate policy action and other relevant policy areas, including the EU Common Agricultural Policy (Table 4.9).

**Table 4.9. Main national-level strategies involved in regional development in Sweden**

Strategy	Objective(s)
National Strategy for Sustainable Regional Development throughout Sweden 2021-30	Enable development potential with stronger local and regional competitiveness for sustainable development in all parts of the country
Coherent Rural Development Policy 2018	Develop viable rural areas with equal opportunities for enterprise, work, housing and welfare that lead to long-term sustainable development throughout the country
Policy for Sustainable Urban Development – Liveable Cities 2018	Ensure that cities are inclusive and accessible urban environments that offer everyone an attractive and green living environment
Climate Policy Action Plan 2019	Ensure that, by 2045, Sweden will no longer have any net emissions of greenhouse gases

Source: Swedish Government (2021<sup>[38]</sup>), *Nationell strategi för hållbar regional utveckling i hela landet 2021-2030 [National Strategy for Sustainable Regional Development]*, <https://www.regeringen.se/4956ea/contentassets/53af87d3b16b4f5087965691ee5fb922/nationell-strategi-for-hallbar-regional-utveckling-i-hela-landet-20212030>; Swedish Government (2018<sup>[39]</sup>), *En sammanhållen politik för Sveriges landsbygder [Coherent Rural Policy Bill 2018]*, <https://www.regeringen.se/4952fb/contentassets/f7a8f90de7604a9db488f4c5585372ca/kortversion-en-sammanhallen-politik-for-sveriges-landsbygder-for-ett-sverige-som-haller-ihop>; Swedish Government (2017<sup>[40]</sup>), *Living Cities Strategy - Policy for Sustainable Urban Development*, <https://www.regeringen.se/4971fa/contentassets/b5640fd317d04929990610e1a20a5383/171823000webb.pdf>; Swedish Government (2019<sup>[41]</sup>), *En samlad politik för klimatet [Climate Policy Action Plan 2019]*, <https://www.regeringen.se/49c770/contentassets/b0f74b9a2a024cfcb1ea42966963abfb/en-samlad-politik-for-klimatet---en-sammanfattning-av-regeringens-klimatpolitiska-handlingsplan.pdf>.

The *National Strategy for Sustainable Regional Development 2021-2030* establishes three main challenges to address: i) environmental problems and climate change; ii) accelerated demographic changes; and iii) widening territorial gaps both within Sweden and in the EU. These challenges vary throughout the country and, together with globalisation, digitalisation and other technological developments, will affect sustainable development. Furthermore, it establishes the strategic action areas that the regions should consider implementing to achieve the regional development objectives. These areas are: i) equal opportunities for housing, work and welfare throughout the country; ii) skills supply and skills development throughout the country; iii) innovation and renewal as well as entrepreneurship and enterprise; and iv) accessibility through digital communication and transport systems throughout the country (Swedish Government, 2021<sup>[38]</sup>).

In these areas of action, the national strategy details various specific sub-areas, for example: the development of high standards of quality of life with good and attractive habitats; good community planning; and good access to public and commercial services. These specific areas of action are very much aligned with the needs of Gotland. As discussed later in this chapter, Gotland will greatly benefit from advancing

in ensuring attractive living conditions throughout the island year round, which would allow it to attract tourists and, above all, residents. Also, regarding accessibility through digital communication and transport systems, the national strategy establishes the specific action area of ensuring improved access to fast broadband and greater digital use. This is a significant need on Gotland and is considered a key challenge in its regional development strategy (Region Gotland, 2021<sup>[42]</sup>). The national budget is aligned with the national strategy. Regions are allocated national structural funds to invest in development projects, which are led and implemented by local and regional actors with the purpose of fulfilling various objectives that are laid out in their regional development strategies. The national strategy sets out requirements for how regional and local actors may use the funds (Box 4.5).

#### **Box 4.5. Sweden's *National Strategy for Sustainable Regional Development 2021-2030***

In early 2021, the national government published the *National Strategy for Sustainable Regional Development throughout Sweden 2021-2030*. This document lays the foundation for the elaboration of regional development strategies for all regions and the municipality of Gotland. Based on an analysis of the social, environmental and economic conditions of the country, it establishes three specific challenges – together with globalisation, digitalisation and other technological developments – to be addressed and four strategic areas of action.

##### **Challenges**

- Environmental problems and climate change.
- Demographic change.
- Increased gaps both within Sweden and within the EU.

##### **Strategic areas**

- Equal opportunities for housing, work and welfare throughout the country.
- Skills supply and skills development throughout the country.
- Innovation and renewal as well as enterprise and entrepreneurship.
- Accessibility through digital communication and transport systems.

In addition to establishing these challenges and strategic areas of work, the national strategy provides that the development strategies of each region must be comprehensive and intersectoral and must contain long-term goals and priorities. In addition, they should encourage and facilitate cross-sectoral collaboration among counties and among actors at the local, regional, national and international levels. To ensure the success of these guidelines, the strategy establishes three basic requirements.

##### **Basic requirements**

- Capacity for regional and local development work.
- Regional considerations and co-operation between state authorities, regions and other actors.
- Learning through analysis, follow-up, evaluation and research.

Source: Swedish Government (2021<sup>[38]</sup>), *Nationell strategi för hållbar regional utveckling i hela landet 2021-2030 [National Strategy for Sustainable Regional Development]*, <https://www.regeringen.se/4956ea/contentassets/53af87d3b16b4f5087965691ee5fb922/nationell-strategi-for-hallbar-regional-utveckling-i-hela-landet-20212030>.

### *Our Gotland 2040: Gotland's regional development strategy*

Gotland's regional development strategy – Our Gotland 2040 – is the main steering document for strategic development and co-ordination for Gotland. The document was approved by the regional council in early 2021 and is supposed to be the starting point for other strategies, plans and programmes, as well as for structural programmes and investment funds of the EU. Region Gotland and government agencies, including the CAB, must contribute to its implementation. The main challenges to address are grouped into five areas: climate, social cohesion, demographic development, globalisation and digitalisation.

This strategy's elaboration overlapped with the development of the National Strategy for Sustainable Regional Development 2021-2030 and, as such, it is very well aligned with the 2015-20 strategy; likewise its principles and strategic areas of action coincide with those established at the national level in the latest regional development strategy. Our Gotland 2040 is also closely aligned with national strategies on climate, rural and urban matters. In the climate area, the regional development strategy identifies as key challenges the reduction in greenhouse gas emissions and the need to move towards a sustainable energy supply model. In the area of social cohesion, like the National Strategy for Sustainable Regional Development 2021-2030, Our Gotland 2040 recognises the presence of significant gaps among its inhabitants, both in the area of health, levels of social participation and gender. Also, Gotland's regional development strategy addresses demographic megatrends, especially the ageing population and the importance of taking care of rural sectors. Finally, it dedicates a significant section to the relevance of further developing the digital infrastructure and connectivity aspects on the island, both to reduce the gaps in the use of these tools, and to boost local businesses.

**Table 4.10. Gotland's regional development strategy, Our Gotland 2040**

Strategic area	Priorities for achieving the goals
Education	Give all young people the opportunity to complete upper secondary education with passing grades
	Get more young people to opt for tertiary education
Connectivity	Strengthen Gotland's connections with the outside world
	Ensure Gotland's access to digital infrastructure
Promote innovation and renewal	Enhance innovation capacity in Gotland society
	Strengthen competitiveness through smart specialisation (areas of strength: hospitality, food industry, energy transition in trade and industry)
Strengthen and further develop the business community	Improve conditions for starting, running and developing companies
	Increase opportunities for companies to reach a larger market
Enhance attractiveness	Strengthen factors that promote Gotland's attractiveness
	Strengthen knowledge and communication about Gotland's attractiveness
	Encourage more students to come to Gotland and remain on Gotland after their studies
Create favourable conditions for construction and housing	Create conditions for a diverse range of homes for everyone
	Develop attractive and well-designed homes and living environments

Source: Specific selection of relevant strategic areas and priorities from Region Gotland (2021<sup>[42]</sup>), *Our Gotland 2040 – Regional Development Strategy for Gotland*, <https://www.gotland.se/110992>.

*The system of actors involved in the regional development of Gotland is diverse and sometimes complex*

Just as there is a diverse set of strategic documents for regional development and growth, there are also several layers of actors involved in the design, implementation and monitoring of these strategies. The regions are primarily responsible for regional development tasks and they must design and co-ordinate the implementation of their own regional development strategies. In addition, they must prioritise the distribution of allocated resources based on regional conditions and priorities. However, the map of actors involved in regional development in Sweden, and therefore Gotland, is much more complex and includes institutions at the international, national and local levels (Table 4.11).

At the international level, organisations such as the EU and the Nordic Council of Ministers have an impact. The first plays a fundamental role in defining principles for the alignment of national and regional development strategies. In order to correct structural imbalances and promote equitable living conditions throughout Europe, the EU uses documents such as the Territorial Agenda 2030, the Cohesion Policy 2021-2027 and the Common Agricultural Policy 2023-2027. On the other hand, the Nordic Council of Ministers is a space for the political co-ordination of the Nordic region that, through the Action Plan 2021-2024, establishes common objectives and actions for regional development in areas such as legislation, digitalisation and innovation, climate and environment, education and gender equality. The latter may be of particular importance for Gotland as it seeks, among other things, to promote municipal co-operation at the Nordic level in green planning and development (Nordic Co-operation, 2020<sup>[43]</sup>).

At the national level, according to the Regional Development Responsibility Law, government agencies that exercise regional development and growth functions in the regions must work in line with the objectives established in the regional strategies. This implies that more than 30 government institutions are involved in the development of the regions. One of the most important is the Swedish Agency for Economic and Regional Growth, which should implement initiatives that promote regional development and improve the conditions for dialogue, co-operation and learning between the various relevant actors at the national, regional and local levels. In addition, other relevant actors are the Swedish parliament, the Swedish Health Agency, the Swedish Financial Management Agency, the Authority for Digital Administration, the National Agency for Education and other sectoral institutions (Swedish Government, 2021<sup>[38]</sup>).

Likewise, the law establishes that CABs must also promote the development of the regions and work to ensure that national goals have an impact on the region. The CABs must promote the participation of the state in regional development planning and must work in support of the achievement of the objectives of the national strategy. Among other things, CABs must promote the implementation of the United Nations 2030 Agenda and work to ensure that climate and environmental goals have an impact on the development of regional strategies. On Gotland, there are spaces for dialogue between the CAB and the regional government and there is consensus that they work well and that the co-operative relationship is fluid and productive. However, there are still some overlaps and duplications in regional development between the Gotland government responsible for regional development and the national agencies that support implementing sectoral strategies.

**Table 4.11. Main actors, roles and strategies for regional development in Sweden**

Level	Institution	Role	Strategies
International	European Union	Corrects imbalances between countries and regions by delivering political priorities to member countries.	Territorial Agenda 2030 Cohesion Policy 2021-2027 Common Agricultural Policy 2023-2027
	Nordic Council of Ministers	Decides strategic lines for regional political co-operation in the Nordic region.	Action Plan for 2021-2024

Level	Institution	Role	Strategies
National	Riksdag (Parliament)	Establishes legal and institutional bases for the distribution of responsibilities and the work of government agencies in the regions.	Regional development responsibility law Regional development work ordinance
	Ministry of Enterprise and Innovation	Co-ordinates governmental actions. "Rural proofing", planning, funding, implementation and evaluation.	National Strategy for Sustainable Regional Development 2021-2030 Coherent Rural Policy Bill 2018
	Swedish Agency for Economic and Regional Growth	Supports regions and private companies to foster sustainable regional and rural development and competitive growth. Co-ordinates support to strengthen the rural perspectives of municipalities, regions and authorities. Managing authority for the ERDF funds.	National Strategy for Sustainable Regional Development 2021-2030 EU Cohesion Policy 2021-2027 Coherent Rural Policy Bill 2018
	Ministry of Environment	Leads the development of the climate policy framework in the country and co-ordinates the implementation of climate action plans.	Policy for Sustainable Urban Development 2018 Climate Policy Action Plan 2019
	Board of Agriculture	Managing authority for the rural development programme, responsible for the agricultural sector.	Rural development programme (CAP)
Regional/Local	County administrative boards	Work to ensure that the objectives of the national strategy are achieved and considered in regional strategies.	All national-level strategies
	Region Gotland	Develops the regional development strategy, co-ordinates regional development activities in tandem with state agencies and the CAB, and conducts monitoring and evaluation of regional development work.	Our Gotland 2040 Comprehensive plan 2040 (draft on public consultation currently till 25 April)
	Businesses and civil society organisations	Contribute to regional and local development through co-operation with government entities.	All relevant documents

The national regional development strategy recognises the importance of stakeholder participation (e.g. the private sector and civil society organisations) in regional and local development. The private sector participates in co-operation mechanisms with the state, such as through public-private alliances for investment in infrastructure in areas such as transportation, education, culture and recreation. Civil society can play a vital role in providing public services. In the case of Gotland, the participation of civil society is of utmost importance for regional development. The island is composed of diverse communities with very marked identities, many of which stand out for having a particular desire to collaborate for community development in areas as diverse as cultural promotion, business development and public service delivery.

In the last decade, Sweden has adopted a more cross-sectoral approach in designing development policies and has strengthened the multi-level dialogue and governance aspects of national strategies that influence regional development. This in part reflects the transfer of regional development responsibilities to various county councils beginning in the late 1990s, a process which was concluded in 2018. Since the National Strategy for Sustainable Regional Growth and Attractiveness 2015-20, particular emphasis has been placed on the relationship between the different levels of government and the multiple other regional development actors or stakeholders. Thus, for example, the National Strategy for Sustainable Regional Development 2021-2030 establishes that government agencies that carry out activities in the region (ministries and central-level agencies, as well as the CAB) must take into account the development strategy designed by each region and, within its areas of activity, work to achieve the objective of regional development policy. Likewise, the law on regional development responsibility and the ordinance on regional development work establishes that the participation of authorities in regional development work must be done in collaboration with the regions and that the former must consult with the regions on issues that are relevant to regional development sustainable (Swedish Government, 2021<sup>[38]</sup>).

*Gotland's regional development strategy provides the locus for co-ordination with other actors to resolve specific island challenges*

The National Strategy for Sustainable Regional Development 2021-2030 establishes general guidelines and transversal objectives for each region to design and implement its own regional development strategy. Through its national strategy, Sweden has enshrined the importance of regional development being governed both at the national and local levels with a deep territorial perspective. In other words, the potential of each geographic area is used according to its special conditions and needs, as well as to meet its own development objectives. All the strategies that influence regional development at the national level are thus very good foundations and guide the design of regional development strategies.

It should be noted, however, that national strategies do not always consider the unique conditions of islands in setting guidelines and dialogue in vertical co-ordination mechanisms is scarce, causing difficulties for isolated territories and small governments such as Gotland's, which must adapt fewer resources to a unique and incomparable context. These factors can also cause some sectoral policies at the national level to lack a clear and coherent "island articulation" and collide with the development objectives established at the regional level.

Gotland's regional development strategy reflects the urgent needs and strategic priorities that are specific to its territory, while simultaneously supporting the implementation of the national strategy at the territorial level. As such, it is a vital mechanism for the vertical and horizontal co-ordination of various regional development actors. The freedom of manoeuvre that is afforded to Region Gotland to design and implement its strategy in a way that can account for specific development challenges enable the regional government to address national priorities more effectively.

For example, a national-level regional development objective that comes with specific territorial challenges on Gotland is education and the need to equip individuals and companies with better skills. Around 23% of Gotland's population aged 25-64 have post-secondary education of 3 years or more, 1 percentage point below the national regional average (24%) and 11 points below Stockholm (Statistics Sweden, 2020<sup>[44]</sup>). In this regard, Gotland's regional development strategy prioritises issues such as giving all youth the opportunity to complete upper secondary education and encouraging more young people to opt for tertiary education, which is not necessarily an urgent need in other regions (Statistics Sweden, 2020<sup>[44]</sup>).

Another national-level regional development policy objective presenting specific territorial challenges for Gotland is the provision of equal housing opportunities. Gotland faces a shortage of affordable housing, which is driven both by increased building costs and the high number of second homes on the island, which drive up rental costs on the island (OECD, 2021<sup>[14]</sup>). In this regard, Gotland's regional development strategy includes a specific focus on creating better conditions for construction and housing supply, and promoting greater mobility within the local housing market.

An additional national-level regional development policy objective that faces specific implementation challenges in a Gotland context is promoting entrepreneurship and, notably, supporting the growth of Swedish companies. While Region Gotland has a large number of small businesses, it has been less successful at encouraging companies to expand (OECD, 2021<sup>[14]</sup>). In this regard, the Our Gotland 2040 strategy provides outlines with a number of levers to support business competitiveness and growth, such as increasing companies' opportunities to reach a larger market as well as improving the conditions for starting, running and developing companies. The former is a sign of the insularity of Gotland, which sometimes prevents Gotland companies from being able to rely exclusively on the small local market (OECD, 2021<sup>[14]</sup>).

As outlined above, Gotland's regional development strategy is a key planning instrument that can help the regional government to address its specific territorial priorities and challenges. It also serves as a key co-ordination mechanism for ensuring the effective implementation of national strategies (such as the National Strategy for Sustainable Regional Development 2021-2030) at the regional level. However,



effective co-ordination also relies on other elements, such as a system of mechanisms to vertically manage the actors and strategies that underpin Gotland's regional development.

#### *Other mechanisms for vertical co-ordination*

In addition to Gotland's regional development strategy itself, there are three additional and key mechanisms that support co-ordination between Region Gotland and other actors. The Forum for Sustainable Regional Development 2022-2030 serves as a platform for the vertical and horizontal co-ordination of efforts at both a political and technical level in matters such as national strategic priorities, the allocation of competencies and investment in transport, infrastructure and other areas of regional development (OECD, 2017<sup>[3]</sup>). The forum, which is chaired by the Secretary of State for Regional Development, brings together politicians from 21 regions and the national level, as well as other actors such as representatives from the Swedish Agency for Economic and Regional Growth, to engage in dialogue, collaboration and learning between different levels of government.

Additionally, Gotland is a member of the Swedish Association of Local Authorities and Regions (SALAR). SALAR represents and advocates for subnational governments in policy negotiations with the central government and provides a forum for Region Gotland to encourage horizontal co-ordination with both political and administrative peers. It is also a member of the council for the Stockholm-Mälars region (Mälardalsrådet), which promotes the co-ordination of strategies and policies for transport, infrastructure, knowledge and skills development to strengthen Stockholm-Mälars attractiveness.

#### ***Strengthen the co-ordination environment for regional development***

Sweden's National Strategy for Sustainable Regional Development 2021-2030 sets clear guidelines and transversal objectives, which are well aligned with the goals of Our Gotland 2040. Together, national and regional strategies lay a strong foundation for vertical co-ordination, which is also well-supported by other vertical co-ordination mechanisms, such as the forum and SALAR. However, a limitation of the Swedish national strategy is that it does not appear to be island-sensitive and lack mechanisms to support its implementation at a regional level in a way that accounts for specific subnational challenges.

For example, the National Strategy for Sustainable Regional Development 2021-2030, while setting adequate general budget targets and guidelines and emphasising a territorial perspective, fails to expand on the unique reality of the Swedish islands and could incorporate elements that allow a region like Gotland to adapt the national strategy to its specific needs. While it is important for national strategies to allow regions the freedom to develop according to their specific conditions and objectives, a lack of national government support for their specific territorial needs can translate into a greater feeling of isolation and greater difficulties in achieving regional development goals.

Despite Sweden's well-developed co-ordination mechanisms, it can still go further in a better distribution of responsibilities to improve co-ordination and coherence among national agencies that intervene at the regional level and between these agencies and regional authorities.

Some of the co-ordination mechanisms with the national government and its agencies and deconcentrated bodies work well in terms of analysis and elaboration of general guidelines but when it comes to project implementation, there is little clarity in the procedures and forms of management. Specifically, there seems to be confusion in the instructions and concrete actions that each level of government and institution must carry out in certain policy areas. This produces overlaps of competencies between institutions and often hinders the efficient implementation of strategies and policies emanating from both the central and regional levels. Therefore, it is necessary to pay attention to the current institutional arrangements and the ways in which institutional co-ordination occurs and improve them by both better clarifying the distribution of responsibilities and strengthening communication mechanisms (OECD, 2021<sup>[14]</sup>).

Finally, there are accountability issues that need to be attended to. The administrative dividing line that normally exists between municipalities and regions does not exist in Region Gotland, which often generates confusion, not only among citizens but also among other government bodies. Added to this is the presence of the CAB and its responsibilities as a representative of the central level on the island, which often collides with the responsibilities of other institutions such as national agencies and Region Gotland itself. Thus, the unique institutional condition of Gotland and the intricate map of actors involved in its development make it difficult to clearly follow what institutions do what and with what resources. Therefore, efforts are needed to improve transparency in the distribution of responsibilities, the carrying out of actions and the implementation of policies with the aim of strengthening the levels of accountability between public institutions and towards citizens.

The following recommendations are made to address these challenges:

1. Strengthen the dialogue mechanisms between the national government and Region Gotland, so that they serve to attend to the unique conditions and needs of the island and, thus, facilitate the design and effective implementation of place-based policies.
2. Move towards a better and clearer distribution of responsibilities between levels of government to reduce overlaps of competencies and improve understanding between institutions during the implementation of development policies.
3. Create instruments to facilitate the monitoring of public projects, in order to improve the understanding of the distribution of responsibilities between public institutions and strengthen the relationship with the Gotland communities through more and better accountability.

### ***Strengthen vertical co-ordination to ensure place-based and island-proof policies***

National strategies do not always consider the unique conditions of islands in setting guidelines – nor are they meant to – but this can cause difficulties for some territories and small governments when implementing policy and initiatives to meet national objectives while striving to remain aligned with regional needs and priorities. This can also mean that some sectoral policies at the national level do not have a clear and coherent “island articulation” and may collide with the development objectives established at the regional level. To avoid this, national development strategies do not need to be specific to the reality of each territory but it would be helpful to be place-sensitive in supporting their implementation at the territorial level so that, on the one hand, each territory can effectively adapt its strategies and policies to the development objectives established at the national level and, on the other, national-level agencies can clearly understand the needs of each region and inform their decisions based on a fluid dialogue with representatives of these territories.

In this regard, vertical co-ordination mechanisms are key. In the case of Gotland, mechanisms such as the co-ordination instances between Region Gotland and the CAB and, more broadly, the National Forum for Sustainable Regional Development work as the “regional lens” through which central government agencies analyse and inform sectoral decision-making processes (OECD, 2020<sup>[45]</sup>). Therefore, it is crucial that these spaces are particularly island-sensitive and effectively serve the unique needs of a territory like Gotland. Like many islands in other OECD countries – most of them also strong in the areas of tourism and agriculture – Gotland faces the challenges of diversifying its economy, improving the provision of public services in some areas of the territory, prolonging the tourism season, dealing with over-tourism and improving the quality of the experience of visiting Gotland in order to attract higher-value activities and potential new residents (OECD, 2020<sup>[1]</sup>). The formulation of national policies that affect Gotland, as well as the co-ordination mechanisms between the national and regional levels within the island, must take these challenges into account and establish the necessary conditions for decision-making to take place in light of these specific needs, thus ensuring the emergence of place-based and island-proof policies.

The place-based policy approach consists of a set of co-ordinated policies and measures between a large number of institutional actors, which is strategically adapted to the conditions of each region (OECD, 2019<sup>[46]</sup>). Sweden has made great strides in adopting a place-based approach to regional development in the wake of the 2018 reform assigning regional development responsibilities to all regions. In recent years, it has further emphasised the relationship among actors and policy sectors, as well as arrangements that facilitate multi-level governance, which has fostered place-based regional development policies.

However, existing co-ordination problems among institutions and levels of government suggest that it is still possible to finetune the vertical co-ordination mechanisms and incorporate elements that facilitate the alignment between development strategies and policies with a regional impact. Along with incorporating elements that facilitate vertical co-ordination in a place-based framework, Sweden and Gotland in particular can benefit from the creation of national-scope instruments that ensure the consideration of the specific conditions and needs of islands in the elaboration of regional development policies with potential island impacts. This involves generating mechanisms and instruments that promote the creation of regional development policies and strategies that are island-proof and that contribute to correcting the neglect of national politics as regards the insular reality.

The EU has been developing instruments along these lines that can shed light on future work on the matter in Sweden and Gotland. One of them is Article 174 (ex-Article 158 TEC), which establishes the priority of reducing inequalities between regions and recognises the importance of paying special attention to regions that suffer from severe and permanent natural or demographic handicaps, including the islands (EU, 2008<sup>[47]</sup>).

There is also the recent draft report on EU islands and cohesion policy (2021/2079(INI)) which includes the considerations of Article 174, and Article 349 TFEU that establishes that the European Parliament must adopt specific measures to address the particular challenges of certain islands of the EU-27. It raises the need for a resolution of the European Parliament to direct efforts to help regional development and the reduction of inequalities, especially in regions affected by insularity. This report urges the EC to pay attention to the studies carried out by insular regions, in which the high cost of infrastructure and provision of services resulting from remoteness is highlighted and calls, among other measures, for the allocation of extra resources to help cover these higher costs in public spending at the regional level (European Parliament, 2021<sup>[48]</sup>). These efforts to make visible the special conditions of islands in Europe are leading countries in the region to adopt specific measures to address the unique challenges of islands in their national territories, which could be replicated by Sweden.

An example of measures of this kind is the Islands (Scotland) Act 2018, a bill published by the Scottish parliament that establishes a series of provisions to improve the performance of the islands in various strategic areas with a collaborative and participatory approach, through specific regulations and mechanisms. Among other things, the act requires Scottish ministries to create a National Islands Plan to address certain specific sectoral objectives in a co-ordinated manner and sets specific requirements for national authorities, such as conducting community impact assessments, when designing and implementing policies or strategies that may have a differentiated impact on the islands (legislation.gov.uk, 2018<sup>[49]</sup>; Scottish Government, 2018<sup>[50]</sup>).

Although it is not necessary for Sweden to develop specific legislation to frame regional development on the islands, it is recommended that regulatory instruments be at least evaluated to ensure that ministries and national agencies with a territorial presence develop policies that are island-proof., in other words that they adjust to the unique conditions of the insularity, addressing specific challenges of this type of territory, establishing collaborative relationships with local actors and considering the constant participation of the local community in the preparation of actions and the evaluation of their results.

## Optimising public service delivery on the island

Gotland's regional government, unlike other regional or local governments, has a high degree of implementation power as it can administer both regional and municipal assignments with only one administrative structure. Being only one government, Region Gotland can more easily overcome or manage difficulties in co-ordinating regional and municipal administrative and service responsibilities and implementing local policies. However, the responsibility for all subnational government competencies has also placed a heavy workload on the regional government staff, which translates into a series of challenges affecting Region Gotland's ability to provide quality services equitably throughout the island.

First, there is limited capacity to meet the high number of responsibilities that the government must assume. Region Gotland, with a relatively small staff, undertakes a series of assignments which, in other regions, are distributed between the regional and municipal levels. Government officials, especially public servants in executive departments, often have dual roles. In addition, there is a shortage of certain skills – especially digital – among officials, which translates into difficulty for the government to design policies based on the analysis of information and evidence.

Second, the consolidation of two levels of government into a single administration for the entire island of Gotland also means that the government cannot always provide services equally throughout the island's communities. In the past, the existence of several local governments on Gotland allowed for greater physical proximity between citizens and public and administrative services, which today does not occur uniformly throughout the territory. This is reflected in the varying levels of quality and efficiency of government processes, as well as in the levels of user satisfaction with the services provided. According to the Gotland 2020 Annual Report, the region has not yet been able to meet the three service quality goals established in its Governance Plan and Goals 2020-2023:

1. Everyone who uses Region Gotland's services feels that it is easy to get in touch with them within the region.
2. Everyone who uses Region Gotland's services can co-create and be treated with respect.
3. High-quality and efficient processes in operations and services are ensured through continuous improvements, digitalisation, innovation and the leap of renewal (Region Gotland, 2021<sup>[20]</sup>; 2020<sup>[51]</sup>).

These results speak of the difficulty for the government to satisfy the provision of services throughout the territory and explain, in part, the emergence of local development companies in rural areas, which cover some of the government's responsibilities and fills a gap where the region's government cannot and/or is not required to provide services (e.g. water and sewerage in remote rural areas).

There are a number of ways these challenges could be addressed:

1. It would be valuable to develop a culture of continuous training in digital skills through a formal training system within the regional government team.
2. It would be important to strengthen the presence of the government and the provision of public and administrative services through a network of service access nodes in strategic rural areas to facilitate access to services less than 30 minutes away from anywhere on the island.
3. Consideration should be given to promoting collaboration with local development companies in order to facilitate and consolidate their work, align their activities with regional development objectives and establish monitoring and learning mechanisms to evaluate the quality of the services provided and inform the decision-making process in the future.

Each of these is explored in more depth below.

### ***Continuously develop regional government’s management capacities and digital skills***

Among Gotland’s government officials, there appears to be a perception of vulnerability in their jobs, due to a high workload and a portfolio that often exceeds their skills and resources (OECD, 2021<sup>[14]</sup>). Coincidentally, according to the 2020 Gotland Annual Report, one of the greatest challenges for Region Gotland is managing the supply of skills for the public sector (Region Gotland, 2021<sup>[20]</sup>). Despite the fact that there are programmes to improve the skills and capabilities of civil servants within the regional government (in areas such as health and safety at work, labour law, managerial skills and leadership, etc.) and the fact that individual employees can participate in external training, there is a shortage of professional competency in various areas.

One of the most mentioned missing skills is data collection and analysis for the design and implementation of evidence-based policies. Although active work is underway both centrally and regionally based on developed competency supply plans, the administrative skills and capacities of the current Gotland government staff need to be strengthened. Given the difficulty of expanding the staff of civil servants, Region Gotland, in collaboration with the national government, could adopt a strategy to, on the one hand, develop a digital public workforce within the regional government by implementing a continuous process of formal training and, on the other, make an effort to attract and retain skilled professionals to work in the regional government.

The OECD offers a series of recommendations for the development of future skills in public servants. For this, it is necessary, first of all, to build a suitable workspace that facilitates the development of new skills among workers. This involves constantly mapping the skillset needed to keep pace with the digital revolution, effectively communicating within government the importance and benefits of developing digital skills and fostering the development of a culture of learning. Second, it is necessary to ensure the availability of the necessary digital skills and ensure diverse and multidisciplinary teams consisting of well-trained digital and non-digital professionals that reflect a combination of skills and socio-emotional behaviours of digital government to design and provide reliable and proactive services taking into account the needs of users. Finally, to pave the way towards a digital public workforce, actions are suggested such as the implementation of attractive reward systems, investment in digital talents through the provision of training programmes and the execution of proactive recruitment strategies that promote the government as an attractive and worthy employer (Table 4.12).

**Table 4.12. Actions to guide governments in developing a digital public workforce**

Areas of action	Actions
Building the right environment	Be aware of the digital skills that a workforce requires to keep pace with digital evolution
	Communicate a clear and understandable vision of the role of digital technology and actively champion the benefits of digital government
	Demonstrate their engagement by visibly endorsing and actively participating in the rhythm of digital delivery, reducing hierarchical layers and delegating decision-making by empowering teams as the unit of delivery
	Focus on digital professions that are user-centred and have specific objectives and roles
	Establish a learning culture that encourages and provides safety for employees to experiment
	Support different ways of working with necessary policies, tools and technologies
Establishing the skills for a digitally enabled state	Apply a broader digital skills strategy for society as a whole to ensure all are equipped with the necessary skills to thrive in the digital age
	Equip public servants equipped with the digital user skills that support digital government maturity
	Set up diverse and multidisciplinary teams consisting of well-trained digital and non-digital professionals reflecting a blend of digital government socio-emotional skills and behaviours to design and deliver trustworthy and proactive services with user needs in mind
	Ensure leaders model digital government user skills and actively shape the environment to create a digitally-enabled state

Areas of action	Actions
Creating a path to a digital workforce	Set up proactive recruitment strategies that promote the public sector as an attractive, trustworthy and transparent employer
	Offer well-designed, fair, trusted and attractive reward systems that support clear career planning
	Encourage managers to emphasise job growth and professional development through multidisciplinary teams
	Invest in digital talents by offering regular feedback loops and mentoring programmes, and provide training in both formal and informal ways
	Encourage job mobility and diversity of career choices for public servants

Source: OECD (2021<sup>[52]</sup>), "The OECD Framework for digital talent and skills in the public sector", <https://doi.org/10.1787/4e7c3f58-en>.

Establishing a permanent and mandatory formal system of training in digital skills can encourage public servants to deepen their skillsets and stay motivated in their work. Such a system can also reduce the dependence of the Gotland government on the capacities of external third parties (such as the analytical capacity of other municipalities and regions, from which Gotland benefits through its participation in horizontal collaboration mechanisms). An example of this type of system is the Italian initiative Digital Skills for Public Administration. This programme is an initiative promoted by the Department of Public Function to increase and consolidate the digital skills of the staff of public institutions and accompany administrations on the fundamental path towards innovation (Box 4.6). The system offers training programmes for employees and employers in a set of competency areas established in a study plan, such as data management and analysis, computer security, digital transformation and provision of online services. Through a standardised assessment system, the programme allows the identification of digital gaps between officials and institutions and, based on these gaps, offers a set of 33 free courses that cover 1 of the 3 proficiency levels in each specific skill (Dipartimento della Funzione Pubblica, 2021<sup>[53]</sup>).

Along with establishing permanent formal mechanisms for regional skills training and a work culture of permanent training and improvement of digital skills, Region Gotland needs to attract and be able to retain skilled workers. Some of the skills that are highlighted as necessary in the public sector are also skills that are sought in the private sector and, often, public administrations are not as attractive as private companies. To attract trained professionals that can help meet the challenges the island is facing, the regional government must enhance its attractiveness as an employer. This means positioning the public service as a preferred employer through the promotion of an employer brand that connects with the values, motivation and pride of the candidates in contributing to the public good (OECD, 2017<sup>[54]</sup>). But above all, effort should go hand in hand with Gotland's overall efforts to improve its attractiveness as a place to live and work.

#### **Box 4.6. Italy's Digital Skills for Public Administration initiative**

Within the framework of the Governance and Institutional Capacity 2014-2020 programme, the Italian government implemented the Digital Skills for Public Administration initiative. It aimed to impart a homogeneous base of digital skills to all public employees via a structured system identification of digital gaps and a training programme for both employees and institutions as a whole. Its objectives are to:

- Promote the foundations of a shared base of knowledge and technological and innovation skills among public officials.
- Strengthen institutional capacity for efficient public management, through training interventions in digital skills, mainly in e-learning and personalised modalities based on a structured and homogeneous survey of real training needs.

- Democratically develop the digital knowledge of public employees to make the principles of digital citizenship a reality, implement e-government initiatives and implement open government actions.
- Promote the mapping of competencies in the administrations of the different levels of government, also with a view to favouring more effective personnel management policies.

The initiative is based on three main components:

1. **Syllabus:** A document that describes the set of knowledge and skills, organised by thematic areas and proficiency levels, which characterise the minimum set of digital skills that each public employee should have in order to be able to work easily in an increasingly digital world.
2. **Website:** A platform that provides tools for skills verification tests and assessment of post-training learning based on the syllabus, as well as for the selection of the most appropriate training modules to meet the knowledge requirements identified; the platform also supports administrations in planning, managing and monitoring effective skills development paths in line with their organisational needs.
3. **Catalogue:** A system that collects training modules on the competencies areas described in the syllabus, aimed at filling the digital skills shortcomings detected during the self-test phase.

Source: Dipartimento della Funzione Pubblica (2021<sup>[53]</sup>), *Competenze Digitale per la PA*, <https://www.competenzedigitali.gov.it/index.html>; OECD (2021<sup>[52]</sup>), "The OECD Framework for digital talent and skills in the public sector", <https://doi.org/10.1787/4e7c3f58-en>.

### ***Strengthen the presence of regional government services throughout the island***

The results on the quality of public services and resident satisfaction in the 2020 Gotland Annual Report show that Region Gotland is struggling to provide services equitably throughout the island (Region Gotland, 2021<sup>[20]</sup>; 2020<sup>[51]</sup>). In many cases, it is not reaching all communities in the provision of a variety of key services such as housing, water supply, sanitation and leisure. Ensuring easy access to administrative services is another challenge. In some communities, non-profit local development companies created by residents have stepped in to deliver a variety of services, ranging from water and water treatment to housing and entrepreneurial support. Although the participation of non-governmental actors is positive, a stronger government presence in different parts of the island is important, not only to ensure responsibilities are met but also to strengthen relationships of trust with citizens.

In the past, the idea of dividing the region into five municipalities has been discussed. However, there are other options. One of them is to create territorial delegations or government teams with a presence – digital or physical, depending on feasibility – in key areas of the island, dedicated to ensuring the proper functioning of regional and municipal services in each community. If taking this path, the regional government should analyse the best way to subdivide the region into functional areas that share geographic, economic and socio-cultural characteristics and that present appropriate infrastructure to facilitate the work of the delegation, mainly easy road connectivity.

Another possibility is to establish a network of mobile or permanent service points in strategic places. An example of this type of policy is the France Services programme, implemented by the French government in 2021. This network of services seeks to ensure that all users can access key administrative services in areas such as health, work, justice and taxes no more than 30 minutes from their place of residence (Box 4.7). In addition, and as illustrated by the France Services network service positions, these local centres could serve as spaces to train citizens in the use of digital tools and the Internet, as well as co-working spaces for local entrepreneurs. As there are already local development companies that offer this type of infrastructure for co-working, this could be an opportunity for Region Gotland to reinforce its partnership with these local development companies. On the one hand, the regional government could benefit from using the existing infrastructure of some local development companies and being more present in

communities and, on the other, it could contribute to the sustainability of these development companies (explored further below).

#### Box 4.7. France Services network: My local public service

The France Services programme is a network of local one-stop-shops enabled by the French state to strengthen the presence of public services in all regions and, above all, to facilitate access to services in more remote rural areas and priority neighbourhoods. Managed by the Ministry of Territorial Cohesion and Relations with Local Authorities through the National Agency for Territorial Cohesion, the network is made up of 1 745 local one-stop-shops that bring together various administrations in their locations.

The objective of this programme is for each resident of France to be able to access a service point in less than 30 minutes from their place of residence. In addition, these service positions seek to facilitate the training of people with low digital literacy and provide access to co-working services, while strengthening the levels of digital connectivity in less populated areas or with less access to information technologies.

The France Services spaces allow users to access a series of everyday services. The public institutions that provide services at the network of one-stop-shops are: the Family Allowance Fund (CAF), the National Health Insurance Fund (social security), the employment centre, the post office, the tax services and the general public finance department (DGFIP), the Ministries of the Interior and of Justice, the National Pension Fund (CNAV), the French Agricultural Social Security Scheme (MSA). Beyond this guaranteed service base, local authorities can implement additional service offerings. The state plans new partnerships to continually enrich the service offering.

Source: French Government (2021<sup>[55]</sup>), *France services: mon service public de proximité*, [https://www.gouvernement.fr/les-actions-du-gouvernement/services-publics-et-territoires/france-services-mon-service-public-de#Pour\\_en\\_savoir\\_plus](https://www.gouvernement.fr/les-actions-du-gouvernement/services-publics-et-territoires/france-services-mon-service-public-de#Pour_en_savoir_plus).

The people of Gotland would greatly benefit from a network of service points throughout the island. From the island's extremities, travel time to Visby can be over 1.5 hours and about 12% of Gotland's residents have to travel 30 minutes or more to reach Visby. In order to ensure access to public services less than 30 minutes by car from each community (or parish), the regional government could consider deploying 5 to 6 service centres. Service networks could, at a minimum, imply reorganising assignments within the government or could also lead to a need for additional staff for each office position. It might want to start with one or two as pilots and, depending on their level of success, identify locations for additional centres. These networks might also benefit from a collaborative approach with the central government and national agencies represented in the region through the CAB, potentially to ensure staffing but also to open the possibility for citizens to access relevant national or county-level services as well.

As in the case of France Services, this service network could also incorporate buses specially enabled for the provision of services and facilitated access to digital technologies, which would regularly circulate through the different communities on the island. Since most Gotland residents cannot easily reach Visby to access certain services, the implementation of such a network could also target building stronger ties, more active dialogue and greater trust between communities and government, for example by establishing open hours in strategic points for government officials to talk with community representatives to better understand their concerns. If identified as a viable and attractive option, the implementation of this policy will require collaboration with the central government and national agencies represented in the region through the CAB. On the one hand, it will be important to ensure staffing and, on the other, to strengthen the image of the Gotland government as an attractive employer.



Region Gotland is already making significant progress in this direction. In 2018, the regional council adopted the service strategy “A long-term sustainable service offer on Gotland 2019-2030”, with which the regional government intends to review and adapt the geography of public services provided by Region Gotland to ensure better fulfilment of regional development objectives (Region Gotland, 2018<sup>[56]</sup>). The strategy indicates a minimum level of services that inhabitants can expect, in service areas such as healthcare, social care, culture (including libraries), leisure (including bathhouses and ice rinks) and schools.

This strategy has given rise to the *Servicepunkt Hemse* (Service Point Hemse) pilot project, a first service point in the town of Hemse that seeks to serve as an exploration for the subsequent creation of service points in other parts of the island (Region Gotland, 2021<sup>[57]</sup>). This project will be implemented in the spring of 2022 and seeks to ensure equitable access to quality services throughout the region. One of the notable aspects of this project is that, along with seeking to ensure better access to services, it is also aimed at strengthening the attractiveness of the region for residents, visitors and private companies. These types of initiatives go in the right direction and Region Gotland is encouraged to continue these efforts.

### ***Strengthen collaboration with local development companies***

Development companies (*utvecklingsbolag*) on Gotland play a key role in regional development, especially in communities outside of Visby. They are non-profit organisations dedicated to the provision of goods and services to improve living conditions in rural sectors and their purpose is to implement ideas that provide positive rural development, benefiting many and creating a vibrant countryside in Gotland. They are primarily made up of retired, enthusiastic and highly talented individuals eager to make progress in public service sectors where the public sector is not present or not required to act. The areas of intervention of these companies are very diverse. Some are dedicated to strengthening the social fabric through periodic meetings and local events or joining forces to promote services and tourist attractions during the high season. Some advocate with the regional government and CAB for regulatory changes and financial benefits, and support entrepreneurs or micro-enterprises, for example by providing a centre for exercising their activities. The largest development companies even design and implement key infrastructure in areas such as: water, irrigation and sewerage; accessible housing in the countryside; sustainability and energy conversion; solutions for education (especially pre-school); sustainable public transport; cleaning and maintaining public spaces (Box 4.8).

#### **Box 4.8. Non-profits play a key role in Gotland’s development: The case of Nygarn Utveckling AB**

Founded in 2005 in the town of Östergarnslandet, Nygarn Utveckling AB development company is one of Gotland’s large development companies. According to company representatives, Nygarn was created to ensure that services remained available in the area (and counteract a “going to Visby” effect) and to ensure Östergarnslandet’s attractiveness as a place to live year-round. Nygarn currently works on behalf of a community of 900 permanent and temporary residents, and has carried out valuable development projects, including: the purchase of an abandoned school for the construction of a local services hub; investment in fibre optic for the area; construction of community housing buildings and other housing solutions to attract people to the countryside; restoration of the Herrvik fishing port; and is currently conducting, with funding from the Swedish Energy Agency, a feasibility study to create a shared-ownership smart energy system.

In 2015, Nygarn created the subsidiary Nyhagen VA, another non-profit organisation that is responsible for the construction of sewage networks and the provision of access to drinking water in the area. The idea of providing this service arose from the fact that the municipality does not take charge of this service in the area due to its low population density. The operational costs are covered with user charges and fees and, as it is a non-profit organisation, Nyhagen is not taxed on its revenue. This allows the company

to use its income to finance other projects. However, they say more support is needed from Region Gotland and the EU.

Source: GUBIS (2021<sup>[58]</sup>), *Homepage*, <https://gubis.se/>, date accessed: 1 May 2022; Nygam Utveckling AB (2021<sup>[59]</sup>), *Homepage*, <https://nygam.se/>, date accessed: 3 May 2022; Nyhagen VA (2021<sup>[60]</sup>), *Homepage*, <https://nyhagenva.se/>, date accessed: 15 April 2022; and interviews during OECD missions.

*Gotländska utvecklingsbolag i samverkan* (GUBIS) is the association representing these organisations on Gotland. It was founded in 2011 by 3 development companies and is currently made up of 12 enterprises across the island. Counting the residents who live in the communities in which these businesses operate, the association covers 20% of Gotland's resident population, almost half of the residents outside of Visby. GUBIS allows member companies to share lessons and learnings on development projects, facilitate contacts with authorities and financing opportunities, and participate in feasibility studies for projects in rural areas, among other things. The companies grouped in GUBIS accumulate around EUR 744 800 in capital, have a total of 1 605 shareholders and enjoy very high prestige among citizens and the government. Recently, GUBIS has helped Region Gotland in the distribution of grants for rural development initiatives for more than EUR 190 000 (Region Gotland, 2021<sup>[61]</sup>).

Region Gotland could benefit from stronger collaboration with local development companies. These organisations play a fundamental role in the development of rural localities that government-provided public services do not reach effectively, from the provision of space for local culture, small or start-up businesses and the exchange of knowledge, to the creation of housing solutions and the construction of water supply networks. Filling a void left by the government, these organisations have accumulated the necessary know-how to effectively and efficiently design and provide these services and, in many cases, they are better positioned than the government to do so.

The valuable work of local development companies on Gotland is not only a response to a government struggling to provide services in all rural areas of the island but above all a manifestation of the pride of Gotland's inhabitants and their drive to collaborate and contribute significantly to the development of Gotland's rural community (Box 4.9). Like many civil society organisations that co-operate with governments to develop and provide public services, Gotland's communities and their local development companies are development actors in their own right (OECD, 2019<sup>[62]</sup>).

#### **Box 4.9. Local pride on Gotland revolves around parishes**

On Gotland, the concept of parishes (*socknar*) is very much alive and plays a transcendental role in the identities of the island's inhabitants. Gotlanders are proud of their parishes and are permanently involved in their communities to help each other. On Gotland, rural community spaces and sometimes farms or schools function as gathering places and are often well-maintained and equipped to host events such as live opera streaming from New York, community dinners, choir singing and dancing with live bands. The inhabitants of Gotland acknowledge that they are proud to be parishioners and identify as important identity aspects that: i) they live outside of a city; ii) they belong to "a small collection of wonderful and ingenious people"; and iii) they live in a geographically delimited area with a church, in the countryside (Region Gotland, 2021<sup>[63]</sup>).

In this parish identity, there is also the element of wanting to help rural development. Given the age composition of Gotland, in many rural areas, there is a high percentage of retired inhabitants who find in the parish space for valuable exchange and volunteer work. However, this spirit of community participation extends to all inhabitants, of all ages. This community work varies widely and ranges from organising table tennis tournaments and game nights to collective actions to protect nature and to create

local development companies to secure water supplies, develop public transportation, wind energy and the installation of fibre optics, and thus contribute to more comprehensive development.

Source: Region Gotland (2017<sup>[64]</sup>), *Socknar*, <https://gotland.se/socknar>; Region Gotland (2021<sup>[63]</sup>), *Socknar och sockenbor*, <https://gotland.com/article/socknar-och-sockenbor/>.

The Gotland government understands the importance of local development companies and is already working with them in some areas. In 2021 for example, Region Gotland collaborated with GUBIS in the distribution of grants to local development ideas in rural areas throughout the region. Recognising the experience of the local development companies grouped under GUBIS, the regional government assigned them the task of administering a special stimulus package coming from the *Hela Sverige* (All of Sweden) organisation (Region Gotland, 2021<sup>[65]</sup>). However, this kind of collaborative relationship can still be deepened to enhance the effectiveness of the work of these entities, ensure that their participation in the service provision map occurs within the framework of the strategies established at the regional level and that the services provided by these companies meet the standards for equitable access to services throughout the region. In addition, the local development companies in collaboration with Region Gotland could develop an action plan to ensure their sustainability over time.

Currently, these organisations are run by dynamic and proactive volunteers, often mostly retired people who have experience in specific sectors, enthusiasm for their work and a desire to improve their communities. Because many of these companies do not have salaried positions, there is a “succession question”. Who takes over when current volunteers are no longer able to contribute their time and knowledge? This is a very real concern given the ageing trend on the island, making it necessary to find ways to attract young people to these companies. Working in closer association with Region Gotland might help in this aspect, by bringing possibilities for additional human or financial resources.

To strengthen and ease collaboration with development companies, Region Gotland should:

- Generate mechanisms to encourage the creation of these types of organisations and promote their consolidation, eventually reducing administrative and regulatory burdens on them.
- Enable permanent financing channels for the operation of local development company organisations (general funding) and for the execution of projects or maintenance of services that are under municipal responsibility (earmarked funding).
- Establish dialogue mechanisms with local development companies or associations of local development companies to, on the one hand, align the activities of these organisations with regional development objectives and, on the other, monitor results to ensure that the goods and services provided are of the same quality throughout the island.

To ensure that collaboration with local development companies is effective and sustainable over time, valuable insights can be gleaned from the lessons learned from collaboration with civil society around the world. First, it is necessary to establish a clear strategic framework for all actors, in which there is an evidence-based overarching policy, and meaningful, operational and fluid policy dialogue. It is also extremely important that the government provides effective support to these organisations, on the one hand, respecting the independence and work capacity of each local development company and, on the other, seeking mechanisms to minimise the transactional costs of collaboration. Finally, collaboration should occur within a framework of accountability and continuous learning, in which there are transparent practices for monitoring the results of both the work of these organisations and the contributions of the government, and in which these results serve as inputs for future decision-making (OECD, 2012<sup>[66]</sup>)

### ***Enhance accountability by introducing new performance monitoring and evaluation mechanisms***

Given the diversity of actors involved in Gotland's development and the lack of clarity in the distribution of responsibilities, there is a notion of limited accountability, not only among government actors but also among the island's residents. According to government officials, citizens on Gotland are unclear as to whether government projects are carried out by the regional government, the CAB or another national agency and it is also unclear whether the funds used by businesses and local actors correspond to regional, national or EU funds. In addition to making an effort to clarify the distribution of responsibilities and, above all, the specific instructions for each institution in matters of regional development, it is necessary to improve communication between actors and citizens (OECD, 2021<sup>[14]</sup>).

In order to improve understanding between institutions and strengthen the relationship with the community, it is necessary to implement monitoring and evaluation mechanisms that allow all actors to track who (government) does what (responsibilities), how (mechanisms) and with what resources (funding and transfers). For this, it is recommended, for example, to create an interactive monitoring dashboard, in which all agencies involved in regional development on Gotland should report their projects' details and progress. This sort of platform should enable citizens to easily follow the progress of policies and development strategies, identify the entities responsible for project implementation and track the financing flows.

The establishment of an interactive reporting platform will bring the regional government and national age groups together in an effort to enhance internal accountability and will help to clarify actions and responsibilities. For this, a clear methodology must be designed and shared by all the actors involved, establishing institutions and responsible persons, financing mechanisms, execution deadlines and ways of publishing progress reports. Attractive examples of this type of tool can be found in some of the monitoring and evaluation initiatives that some member countries of the Open Government Partnership have carried out to follow up on their action plans within the framework of this multilateral organisation (Box 4.10).

#### **Box 4.10. Online dashboards for monitoring and evaluating open government action plans (Open Government Partnership)**

The Open Government Partnership (OGP) is a multilateral organisation that promotes the principles of open government (transparency, accountability, open data and citizen participation) in its member countries. The countries that comprise it must publish periodic action plans with concrete commitments in the areas of open government and carry out permanent evaluation mechanisms, both their own and independent ones. Due to the complexity of these action plans, the multidimensional nature of their commitments and the participation of various institutional actors in their implementation, the commitments to these plans are not easy to monitor. The OGP has promoted the design of monitoring methodologies that allow both institutions and citizens to have easy and transparent access to progress reports and evaluations. When these mechanisms are solid, they not only improve the levels of accountability and involvement of civil society but they also help to ensure that policies achieve the proposed objectives and allow better oriented decision-making through the identification of challenges in the phases of implementation (OECD, 2019<sup>[67]</sup>).

A successful tool highlighted by the OGP is online dashboards for monitoring and evaluation. A number of countries around the world have notable online mechanisms for monitoring their action plans.

**Australia** launched a comprehensive online dashboard<sup>3</sup> to track progress towards commitments laid out in its 2<sup>nd</sup> Open Government Action Plan 2018-2020. The plan contained eight commitments to enhance access to information, civic participation and public accountability, as well as technology and innovation for openness and accountability. The dashboard enables citizens to track progress towards

each initiative, with a description of each policy action and its expected outcomes, the status of implementation and relevant institutions responsible for its implementation. Australia has recently completed a consultation process with civil society stakeholders as part of the development of its new and forthcoming Open Government Action Plan.

**Chile** implemented a detailed and interactive online dashboard<sup>4</sup> to follow the 12 initiatives committed to in its 4<sup>th</sup> Open Government Action Plan 2019-2021. On its landing page, this dashboard presents each of the initiatives grouped into action areas and offers a quick look at the title of the initiative, the institution responsible for its implementation and the level of compliance to date. By accessing the details of each initiative, users can access information such as the description of the policy or action, the way in which the initiative contributes to the general objectives of the action plan, the responsible institution and person (with contact information for inquiries) and a progress report with compliance percentages for each of the specific actions included in the commitment, including a start date and a projected end date. Chile has already implemented the digital platform for monitoring the progress of its 5<sup>th</sup> Open Government Action Plan 2020-2022 and is soon to upload the first progress reports.

Source: Open Government Partnership Australia (2022<sup>[68]</sup>), *Australia's Second Open Government National Action Plan 2018-2020*, <https://ogpau.pmc.gov.au/>, date accessed: 1 May 2022; Gobierno de Chile (2021<sup>[69]</sup>), *Porcentaje de Avance Total 4to Plan de Acción*, <https://www.ogp.gob.cl/panel-de-seguimiento/>, date accessed: 15 April 2022; OECD (2019<sup>[67]</sup>), *Budgeting and Public Expenditures in OECD Countries 2019*, <https://doi.org/10.1787/9789264307957-en>, date accessed: 14 April 2022.

Along with establishing mechanisms for monitoring and promoting the progress of programmes and policies, it is also necessary to implement methodologies for the evaluation of these actions and measure the extent to which the objectives that are intended to be achieved are being met. Although evaluation usually goes hand in hand with monitoring as they are complementary activities, both actions fulfil different functions and follow different methodologies. While monitoring aims to track and promote continuous progress, evaluation facilitates, among other things, the control of the progress of projects' learnings from their results to inform future decision-making. It also allows citizens to obtain valuable information to evaluate the institutions responsible for providing goods and services in their territories (OECD, 2009<sup>[70]</sup>). Therefore, it is recommended that the creation of an online interoperated dashboard on Gotland be complemented with the implementation of a performance measurement methodology.

For the implementation of a performance measurement methodology, the different levels of government with participation on Gotland must clearly identify the reasons for carrying out this type of activity (greater control, learning, transparency, accountability, etc.), what it is intended to obtain (quantitative and qualitative information on the progress of projects, level of achievement of strategic objectives, etc.) and how it is intended to be achieved (comparison of information collected with progress indicators, stakeholder surveys, etc.). Region Gotland and the national agencies with a presence in the region must agree on a set of actions based on a shared framework for the evaluation of programmes and policies.

Recommended actions for the implementation of a performance evaluation methodology are: adopt a set of strategic objectives (the development objectives contained in Our Gotland 2040 can fulfil this function); create a group of concrete outcomes to achieve the strategic objectives; establish quantitative and qualitative indicators to measure the achievement of the outcomes; implement an evaluation committee composed of, for example, independent experts, representatives of government institutions and members of the community, to carry out evaluation reports; and launch a digital platform with easily-available access to this information that allows the involvement of different stakeholders in the evaluation activities. The latter can be the same online interoperated dashboard for the aforementioned monitoring actions. Thus, together with tracking the progress of the projects and clearly visualising what each public agency is doing, regional stakeholders will be able to identify how the actions carried out on Gotland are contributing to the progress of the island in the established strategic objectives.

An example of a performance evaluation framework and methodology is the Scottish National Performance Framework and Scotland Performs website implemented in 2007. The national framework made it possible to align all levels of the Scottish government around a series of objectives (“a Scotland that is wealthier and fairer, smarter, healthier, safer and stronger, and greener”) and desired outcomes. In addition, it established a set of 50 outcome-oriented indicators to assess the effectiveness of public policies and programmes on issues such as improving residents’ perception of their neighbourhoods and reducing child deprivation, among others (OECD, 2020<sup>[45]</sup>).

The website Scotland Performs, which today is called the National Performance Framework, on the other hand serves as a space to communicate the strategy and provide citizens with access to this information. It is an interactive platform that explains the strategy, its importance, its components and how it works. It also provides information on the government’s performance in a dashboard based on 11 outcome areas (e.g. children, culture, economy, environment, etc.) and 81 indicators that are grouped into five categories depending on the level of government performance in achieving the outcomes. These categories are: i) performance improving; ii) performance maintaining; iii) performance worsening; iv) performance to be confirmed; and v) indicator in development. Together with this dashboard, the site offers the possibility of accessing detailed reports and downloading the information in open data format (Scottish Government, 2021<sup>[71]</sup>).

Both progress monitoring and performance evaluation actions on Gotland should be accompanied by a comprehensive communication campaign by Region Gotland and the CAB, and may also include in-person activities in parishes for direct communication of progress reports and evaluation results by government officials. A clear strategy to communicate objectives, outcomes and progress will enhance accountability and potentially strengthen the relationship between all levels of government and citizenship.

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## Annex 4.A. Benchmarks

**Annex Table 4.A.1. Benchmark islands, by surface and population**

Region	Surface (km <sup>2</sup> )	Population (inhabitants)
Åland Islands, Finland	1 553	29 489
Bornholm, Denmark	581	39 715
Chios, Greece	899	56 340
Lewis and Harris, United Kingdom	3 051	26 816
Orkney Islands, United Kingdom	989	21 949
Samos, Greece	770	46 222
Zakynthos, Greece	405	39 806
Gotland, Sweden	3 134	58 595

Source: Data from OECD.Stat (2021<sup>[72]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

**Annex Table 4.A.2. Remote regions benchmark**

Country	Region
AUT	Liezen
	Osttirol
CAN	Prince, PE
	Lunenburg, NS
	Kings, NS
	Colchester, NS
	Cumberland, NS
	Pictou, NS
	Kings, NB
	Albert, NB
	Kent, NB
	Madawaska County, NB
	Rimouski-Neigette, QC
	Beauce-Sartigan, QC
	L'Amiante, QC
	Arthabaska, QC
	Brome-Missisquoi, QC
	Les Laurentides, QC
	Lac-Saint-Jean-Est, QC
	Lennox and Addington, ON
	Huron, ON
	Bruce, ON
Muskoka, ON	
Comox Valley BC	

Country	Region
	Sunshine Coast, BC
CHL	Petorca
	Cardenal Caro
	Cauquenes
GRC	Lasithi
	Kilkis
	Kastoria
	Florina
	Phocis
ITA	Ogliastra
MEX	Hidalgo, R8
	Quintana Roo, R1
	Zacatecas, R5
PRT	Alto TÃ¢mega
	Beira Baixa

Source: OECD.Stat (2021<sup>[72]</sup>), *Regional Economy (database)*, [https://stats.oecd.org/Index.aspx?DataSetCode=REGION\\_ECONOM](https://stats.oecd.org/Index.aspx?DataSetCode=REGION_ECONOM).

## Annex 4.B. OECD TL3 revised typology

The OECD regional database collects and publishes regional data at two different geographical levels, namely large regions (Territorial Level 2, TL2) and small regions (Territorial Level 3, TL3). Both levels encompass entire national territories. With some exceptions, TL2 regions represent the first administrative tier of subnational government (i.e. states in the United States, *estados* in Mexico or *régions* in France). TL3 regions are smaller territorial units that make up each TL2 region.

The OECD has adopted a new typology to classify administrative TL3 regions. This classification allows for measuring socio-economic differences between regions, across and within countries. It is based on the presence and access to functional urban areas (FUAs) – a concept defining cities and the urban hinterland, in other words, urban economic agglomerations.

By controlling for these regional characteristics, the typology classifies TL3 regions into two groups: metropolitan and non-metropolitan regions. Within these two groups, five different types of TL3 regions are identified. The metropolitan regions (MRs) adopt 50% of the population of the TL3 (small) region living in an FUA of at least 250 000 inhabitants as a threshold; non-metropolitan regions (NMRs) adopt a 60-minute driving time as a threshold, a measure of access to an FUA.

The methodology follows the criteria below:

- Metropolitan TL3 region, if more than 50% of its population live in an FUA of at least 250 000 inhabitants. MRs are further classified into:
  - Large TL3 MRs, if more than 50% of its population live in an FUA of at least 1.5 million inhabitants.
  - TL3 MRs, if the TL3 region is not a large MR and 50% of its population live in an FUA of at least 250 000 inhabitants.
- Non-metropolitan TL3 region, if less than 50% of its population live in an FUA. NMRs are further classified according to their level of access to FUAs of different sizes into:
  - With access to (near) a metropolitan TL3 region (NMR-M), if more than 50% of its population live within a 60-minute drive from a metropolitan area (an FUA with more than 250 000 people); or if the TL3 region contains more than 80% of the area of an FUA of at least 250 000 inhabitants.
  - With access to (near) a small/medium city TL3 region (NMR-S), if the TL3 region does not have access to a metropolitan area. Fifty percent of its population have access to a small or medium city (an FUA of more than 50 000 and less than 250 000 inhabitants) within a 60-minute drive; or if the TL3 region contains more than 80% of the area of a small or medium city.
  - Remote TL3 region, if the TL3 region is not classified as NMR-M or NMR-S, i.e. if 50% of its population do not have access to any FUA within a 60-minute drive.

The described procedure leads to more statistical consistency and interpretable categories that emphasise urban-rural linkages and the role of market access (OECD, 2020<sup>[73]</sup>).

## Notes

<sup>1</sup> In an attempt to facilitate comparisons between Gotland and other territories in Sweden, Statistics Sweden has estimated that 65% of Gotland's total activity corresponds to municipal activities, while 35% corresponds to region activities. Given that for Gotland several of the income categories in national statistics databases are aggregated at the municipal level, in some of the tables in this section, the values have been calculated at 65% for comparison with the performance of other municipalities. These tables are only an estimate and are used exclusively for comparative purposes; it is recommended to read them with caution.

<sup>2</sup> In Europe, the LEADER (Liasons entre actions de developement rural) initiative, introduced in 1988, is based on local partnerships (private and public) designing a development project for a target area whose size is generally limited by administrative boundaries (not more than 100 000 inhabitants). The main features of the LEADER approach are the following ones: a) a bottom-up approach; b) integrated actions; c) a multi-sectoral vision; d) co-operation (local and transnational); and e) networking.

<sup>3</sup> See <https://ogpau.pmc.gov.au/>.

<sup>4</sup> See <https://www.ogp.gob.cl/4to-plan-de-accion/>.

# OECD Territorial Reviews

## Gotland, Sweden

Gotland is Sweden's largest island and the largest island in the Baltic Sea. While Sweden has numerous Islands, Gotland's development trajectory is unique in Sweden. It is the smallest region in the country in population size and economic base, and it is located the furthest from the mainland (90 km). As an island economy, it must overcome a number of development challenges including its small critical mass, remoteness to larger markets, vulnerability to climate change and limited administrative capacity. Nonetheless, it has a number of important assets, such as being an attractive destination, having a high potential for bio- and circular economy, a university providing research and education, very good broadband connectivity, and a strong local identity and vibrant civil society. This Territorial Review benchmark's Gotland's economic performance against comparable OECD regions to identify areas of untapped potential and develops recommendations in three main areas to help improve the quality of life for residents and support more efficient use of public resources. The first focuses on improving infrastructure planning, investments and delivery. The second on supporting the business environment and innovation eco-system and the third, on improving administrative and financing capacity to deliver quality services throughout the territory.



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