



Rethinking Regional Attractiveness in the **Dalarna County** of Sweden



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Rethinking Regional Attractiveness in the Dalarna County of Sweden

2023

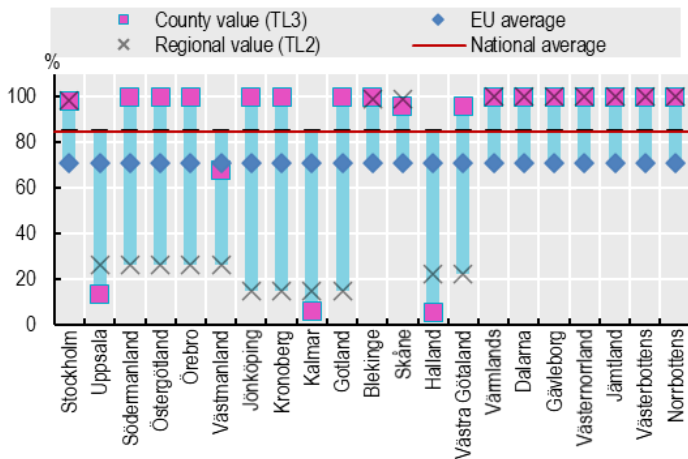


The impact of the COVID-19 crisis, compounded by the consequences of Russia's war of aggression against Ukraine and existing megatrends (e.g. climate change, globalisation, digitalisation and demographic change), continue to produce asymmetric effects within and between countries and regions, with the scope and scale depending on their unique characteristics.

The OECD's work on Rethinking regional attractiveness policies in the new global environment, is undertaken with the support of the European Commission (DG REGIO) and is a priority activity of the Regional Development Policy Committee (RDPC). Working closely with 15 regions in 5 OECD member countries (Ireland, Italy, Portugal, Spain and Sweden), it aims to help regional and national policymakers to better understand the position of regions in an evolving global context, including emerging challenges and opportunities, and identify the policy levers at their disposal to enhance the attractiveness of regions to the key international target groups of investors (including exporters), talent, and visitors. In doing so, it seeks to support regions transition towards new territorial development policies that promote inclusive, sustainable, and resilient development, while enhancing regional attractiveness.

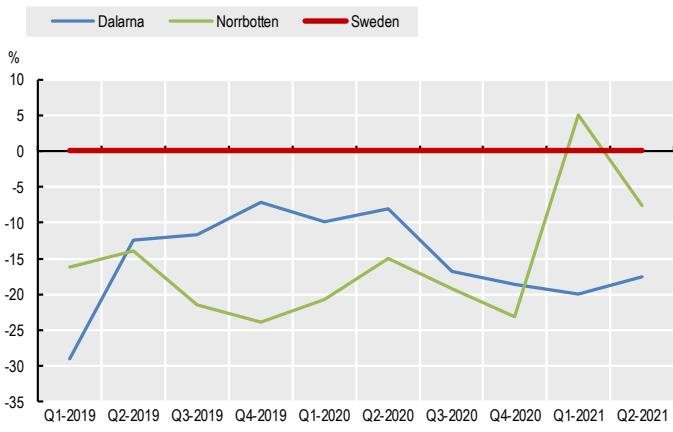
4 | A snapshot of Dalarna in the World¹

Share of renewables in electricity generation



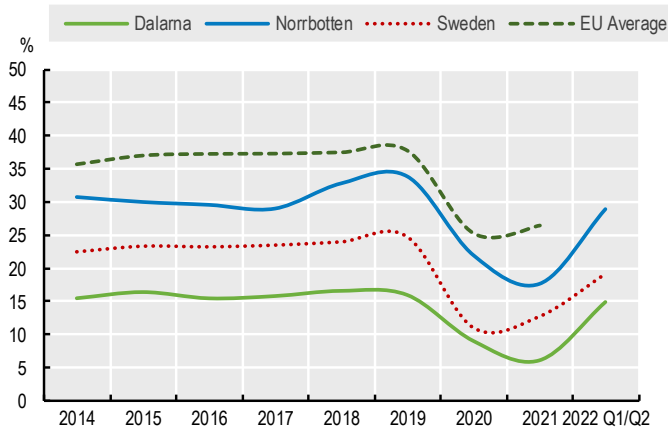
Source: OECD Environmental database (2019); OECD regions (TL3)

Download speed as a percentage of deviation from national average



Source: OECD calculations based on Ookla database; 2021; OECD TL3 regions

Share of nights spent by foreign tourists in accommodation establishments



Source: OECD calculations based on SCB.se (2022); Eurostat (2021)

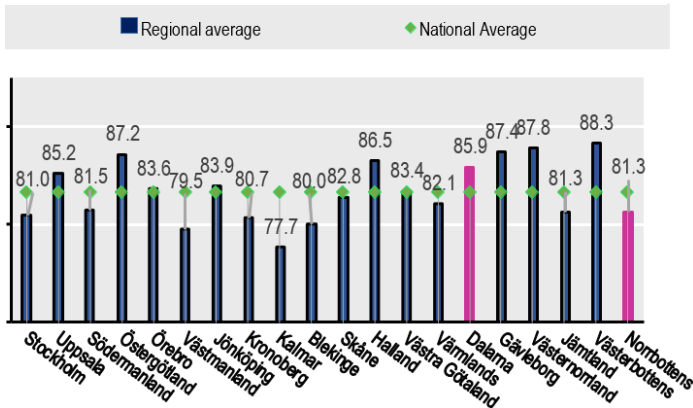
On the clean electricity production front, Dalarna is a key player with an almost entirely fossil-free production, mainly made of hydropower (75–80 %), wind power and combined heat and power plants fired with biofuel and waste. Region Dalarna estimates renewable electricity production can double between 2005 and 2050 (Carlborg and Eriksson, 2018^[1]). To preserve untouched watercourses, the production's expansion should happen through wind power, solar cells, and small-scale bio-based cogeneration. Ludvika municipality is a leading centre in sustainable energy supply, due in large part to the presence of the global company Hitachi Energy, and the international research centre High Voltage Valley. Overall, Sweden has one of the lowest electricity prices in Europe. As the world strives to achieve a swift green transition and fossil fuel prices prove increasingly volatile and drive inflation, relatively cheap clean energy is a unique pull factor for firms, in particular for those who want to green their production or energy-intensive ones.

In terms of download speed, Dalarna has been consistently below the national average. As such, it is lagging behind the national goal of widespread access to high-speed broadband by 2025. Fixed broadband coverage is in line with the Swedish (97.6%) and EU averages (97.9%), with over 95% of homes with access to at least one fixed broadband network (European Commission, 2022^[2]). However, the relatively high county average veils great geographic disparities in internet access, of which the most rural, sparsely populated areas are the losers: there is a 17 percentage points gap between areas with best and worse share of households and businesses with access to fibre broadband (Jakobsson, 2022^[3]). Yet, good access to the internet is key to attract talent - remote workers in particular - investors and visitors, and a condition to reduce distances, both economic and social, within the county and with other parts of the world, and ensure inclusive development.

Dalarna is Sweden's most visited tourist area outside of the metropolitan regions of Stockholm, Gothenburg, and Malmö. However, the vast majority of tourists visiting the County are Swedes, due in part to the many Swedish national symbols, like wooden horses, traditional folk dresses and the iconic red cottages originating in Dalarna. Thus, since at least 2014, it is among the EU and Swedish counties with the lowest proportion of foreign guest nights as a proportion of total nights. Before the pandemic, it experienced a smaller increase in the share of overnight stays by foreign visitors than experienced in Sweden and the EU more broadly, and during the pandemic, this share fell (down to 6% in 2021), but by less than for Sweden as a whole. The county has rebounded promisingly since Q3 2020, with the top three international source markets being Germany, the Netherlands and Norway.

¹ Data are provided in this section are at the TL3/NUTS3 level which, except for some dimensions, limits international comparison on regional indicators today mainly available at TL2/NUTS 2 level.

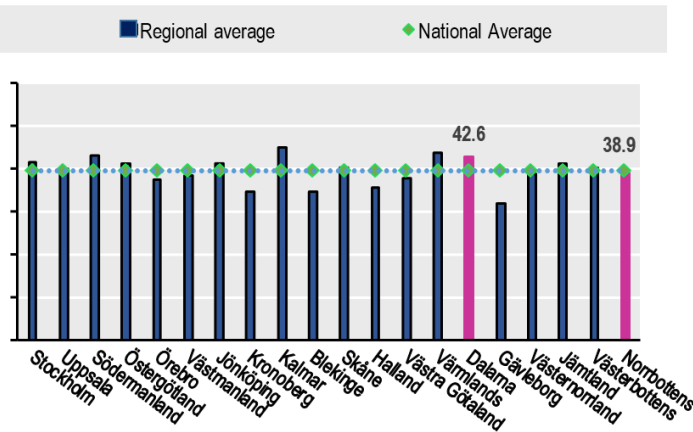
Share of inhabitants satisfied with the range of cafes and restaurants in their municipalities (%)



Note: Gotland and Jämtland do not appear because of missing data
Source: Swedish Statistical Database, 2021

Sociability places are an essential determinant of individual and community well-being (Algan, Clément and Claudia, 2020^[4]), and thus of places' capacity to attract and retain people. Dalarna scores above the national average in terms of the share of locals satisfied with the range of cafés and restaurants in their municipalities. This is remarkable considering Dalarna's large distances and low population density. Socio-demographic disparities yet exist. For instance, only 17% of those aged 18 – 29 years old are satisfied with the range of places for young people to meet in their municipality (e.g. leisure centres, youth clubs) (Statistics Sweden, 2021^[5]).

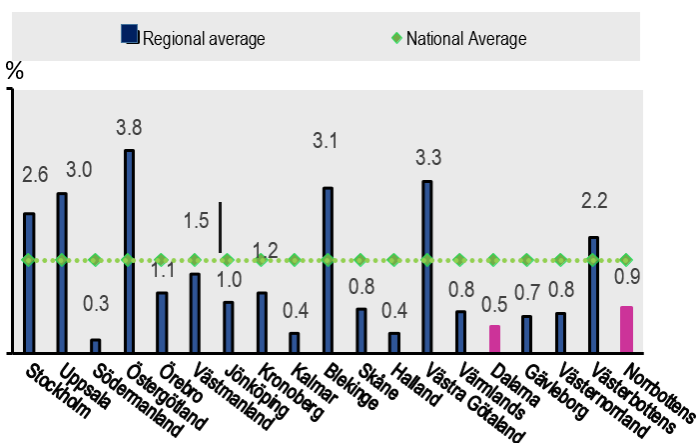
Share of population that have high trust in their municipal politicians (%)



Note: Gotland does not appear because of missing data
Source: Swedish Statistical Database, 2021

Regarding trust, Dalarna municipal politicians score above the national average, and below that of the OECD, which is of 46.9%. Geographic disparities exist, with 86% of those living outside urban areas feel politicians are not responsive to residents' thoughts and ideas about the municipality and its activities, against 79% in total (Statistics Sweden, 2022^[6]). Low levels of trust can have serious implications for places' attractiveness, as trust conditions the success of a wide range of public policies that depend on behavioural responses from the public, such as compliance with public health responses or the tax system. In the longer term, trust can help governments tackle societal challenges such as climate change, ageing populations, and changing labour markets.

Share of employees working in the R&D sector



Note: Gotland and Jämtland do not appear because of missing data
Source: Swedish Statistical Database, 2021

The share of employees working in the R&D sector is very low compared to Sweden in average. Partly because of long distances (OECD, forthcoming^[7]), and the historical dominance of long-established manufacturing sectors such as steel and paper. Nevertheless, in particular thanks to life-long learning and above average digital skills, the county has developed competencies in specific sectors such as sustainable steel, or smart energy systems. The EU identifies the county as being at risk of falling into the middle-income trap². Creating a more innovation-based environment can help avoid this scenario. The county's R&D score must however be weighed against the fact Sweden continues to be the EU innovation leader, according to the 2022 EU Regional Innovation Scoreboard.

² Middle-income trap regions are ones that lost their competitive edge because their high costs, level of skills and innovative capacity mean they cannot compete on low-wages goods and services, nor on high value-added activities (Iammarino et al., 2020^[57]). The result is prolonged periods of stagnation, higher average levels of unemployment (especially, long-term unemployment) and, in some cases, demographic decline.

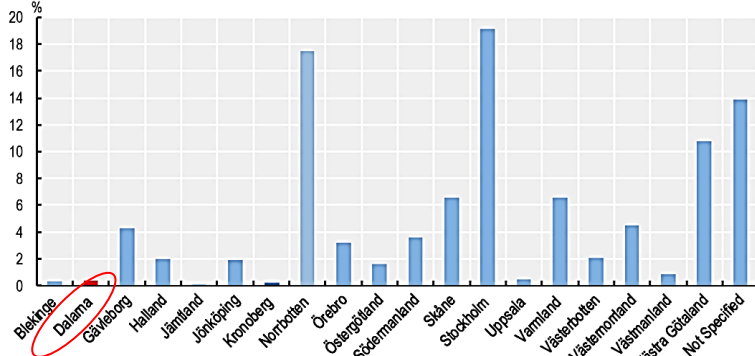
Attractiveness profile: Dalarna

Dalarna has what it takes to be increasingly attractive to international target groups in the middle to long-term, and ensure its sustainable development. Given its close proximity to Stockholm (about 220 km from Dalarna's capital of Falun), the county is well located to attract residents of the Capital for leisure, lifestyle, and business opportunities. Nevertheless, this will not be a quick fix and will require improving several aspects of the economic ecosystem and the living environment. In particular, improving well-being factors whose weight has been reinforced by the pandemic in individuals' location decisions such as good access to education and health public services, or a vibrant cultural offer will be crucial to attract and retain new inhabitants.

The OECD considers four families of international connections in order to understand the position of regions in the world: business (e.g., FDI, trade,

employment in foreign firms, etc.), human (employment, migration, and visitors), knowledge (foreign students, R&D, patents) and infrastructure (broadband, (air)ports, stations). Big opportunities and challenges lie with the very low levels of FDI Dalarna is experiencing. Between 2018 and 2022, it received less than 1% of all FDI entering Sweden. Nearly 100% of received FDI went into the energy-intensive paper, printing, and packaging sector, to which cheap renewable energy available in the county is a strong pull factor. Thanks to its energy production, Dalarna has until now been spared from harsh consequences of energy price increases due to the war in Ukraine, which hit many EU paper, printing and packaging manufacturers, forcing for instance mills to undergo downtime.

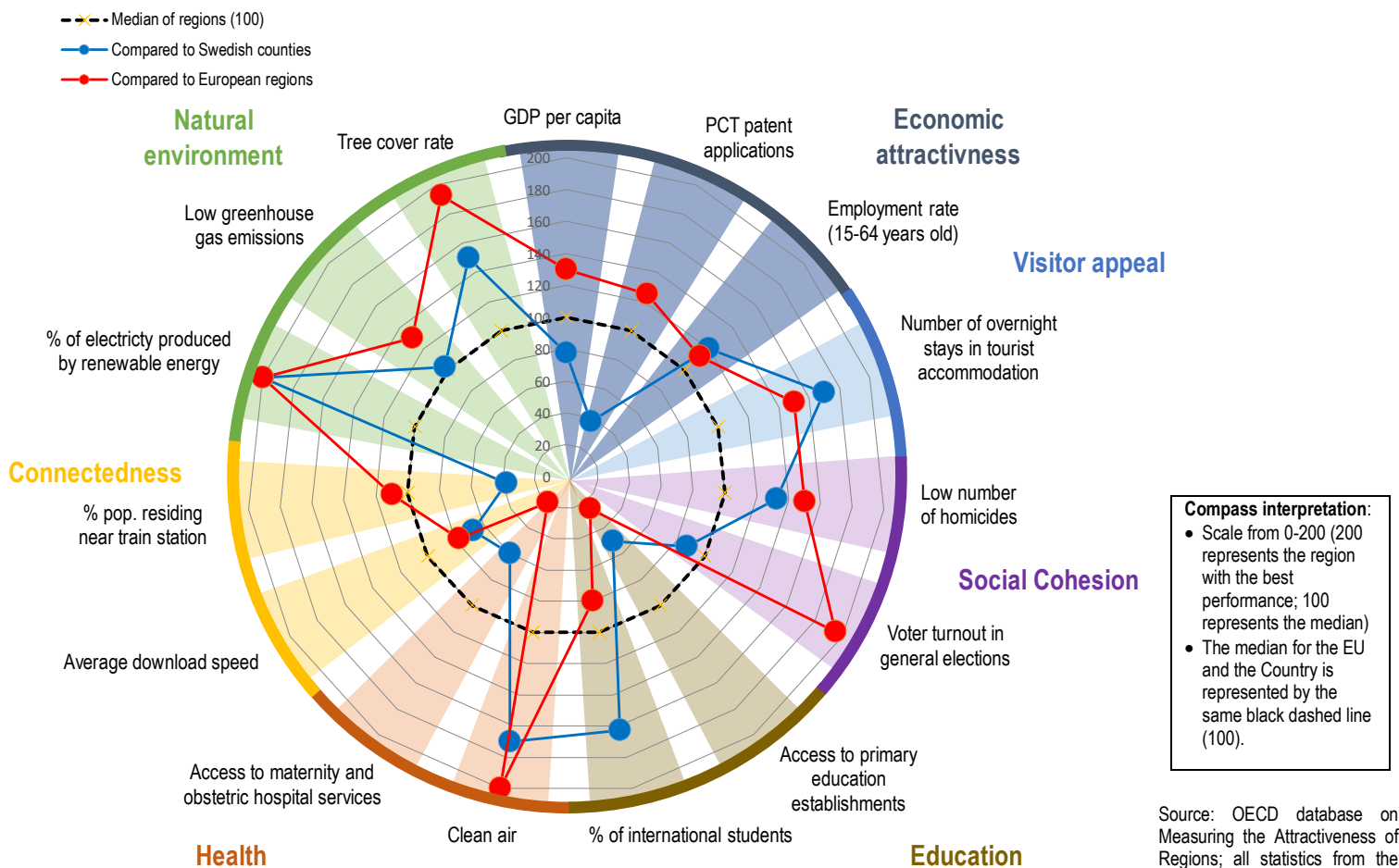
Swedish FDI by country of destination for the period 2018 - 2022



Note: Counties for which FDI represents < 0.5% of Swedish FDI are excluded from the graph
Source: OECD calculations based on Ft markets data, 2022

The OECD's innovative and multidimensional approach to assessing regional attractiveness to investors/exporters, talent and visitors considers global engagement beyond international connections and financial drivers alone. In total, the methodology considers more than 50 indicators to develop regional attractiveness profiles, covering 14 dimensions of attractiveness, across six domains (Economic attraction, Connectedness, Visitor appeal, Natural Environment, Well-being, Land-use and Housing). A large part of non-financial attractiveness is related to the regional quality of life.

Attractiveness Compass: Dalarna Region



Economic attractiveness. Dalarna's economy generally performs rather well relative to the European median, but below the wider Swedish economy in terms of GDP per capita and PCT patent applications. Unemployment is decreasing, but parts of the county still have the highest rates in Sweden, partly due to restructuring in industry and incomplete integration of foreign-born³. The number of newly created companies per capita is lower than national average (10.5 against 13.2 (Regionfakta, 2021_[8])). Despite regional and local initiatives, and similarly to most EU rural regions (OECD, 2022_[9]), gender imbalances persist. Compared to national results, women create fewer businesses and only manage 1/3 of them (Regionfakta, 2021_[10]). Long distances between urban centres, unequal access to high-speed internet, low R&D employees share and a low share of highly educated people (2nd lowest in Sweden) hamper innovation. Each municipality is the largest employer in its territory, but overall, much of the economy depends on primary industries such as agriculture, forestry, paper production, steel manufacturing and iron & copper mining, making the county one of Sweden's biggest exporters (Borlänge kommun, 2022_[11]). The prevalence of few firms from industries facing intense foreign competition and automation makes the local economy vulnerable to shocks – a fragility exacerbated by the county's exclusive reliance on Europe for inward FDIs.

Visitor appeal. With rich natural and cultural capital. Dalarna is an attractive tourism destination. The county has the third highest number of natural monuments⁴ in Sweden (Statistics Sweden, 2021_[12]), and hosts various international sporting and traditional events. Place-specific tourism magnets include the Sälen ski resort (biggest in Sweden in terms of number of lifts and runs) that increasingly attracts international visitors (mainly Danish and Germans) thanks to the new regional Scandinavian Mountain Airport, traditional midsummer folk festivities in villages around the Siljan Lake (e.g. Leksand), and the largest cities, Borlänge and Falun, notably home to the UNESCO mine. Given its assets and geographic proximity to Stockholm, Dalarna has the 3rd highest number of Swedish-owned holiday houses (Statistics Sweden, 2021_[13]).

Connectedness. Dalarna has among the lowest population density in Sweden with 10 persons per km², against an average of 109 inhabitant per km² in the European Union. Thus, inhabitants, especially those living outside urban areas, need quality and functional transport and digital infrastructure. Dalarna residents have an average download speed below the EU and national medians. At the same time, they have reasonable access to train stations compared to EU regions, and 88% of all homes are within 1 km of a public transport stop, which is free when travelling to and from health services. Nevertheless, internal disparities exist: while 95% of residents in urban areas are close to public transport, this figure falls to 47% for those in non-urban areas (Statistics Sweden, 2021_[14]). As a result, Dalarna has the 2nd most cars per capita of all counties in Sweden (Regionfakta, 2022_[15]). Moreover, as the current capacity of the freight railway is insufficient to handle the large quantities of goods transported through middle Sweden, leading to congestion on roads caused by large numbers of heavy goods lorries. Expected increase in exports of growing industrial ventures from Dalarna and Northern Sweden will require heavier, longer and faster trains connected to ports. Currently, already ¼ of freight trains on Swedish railways originate in or pass through Borlänge (Borlänge kommun, 2022_[11]).

Health and education. Many residents in Dalarna are further from primary and secondary schools, hospital maternity and obstetrics, as well as cardiology wards compared to the EU and Swedish medians. The number of doctors per capita is also one of the lowest in the country, Dalarna County estimates that in next decades about one third of its staff will retire and need to be replaced, among which ambulance drivers, dentists, psychologists and nurses. Compared with urban areas, healthcare services in Dalarna's rural areas are more limited. As a result, only 76.7% of those living outside urban areas are satisfied with access to healthcare within a reasonable distance from their home, e.g. pharmacy, health centre, compared to 93.7% of those living in central towns (Statistics Sweden, 2022_[16]).

Social cohesion. Because in Sweden county and municipal council elections occur simultaneously with those at the national level, the incentive to vote is higher than in most EU regions. Within Sweden, Dalarna scores just below the average in voter turnout. On average, homicides are extremely rare in Dalarna and less frequent than in the median Swedish and EU regions, and people feel very safe (Statistics Sweden, 2021_[17]), although gender variations linger with women feeling less safe than men on average. Overall, the perceived quality of the living environment varies from one municipality to another. For example, there is a 33-percentage point difference between the localities with the highest and lowest share of residents that would recommend their municipality as a good place to settle (Statistics Sweden, 2021_[18]). Clear differences in mental and physical health, as well as in educational level between socio-economic groups is another major well-being challenge facing the county.

Natural environment. The transport sector in Dalarna produces slightly less greenhouse gas emissions than the national median and less than the EU one, yet it still accounts for a third of the county's total emissions, with car traffic alone responsible for half (Smhi, 2020_[19]). The aims to reduce the share of fossil-fuelled transport by 75% by 2030 by increasing renewable fuels and electric vehicles. Overall, GHG emissions have decreased since 2005 in all municipalities, mainly due to lower industrial and heating emissions. The commitment of Dalarna's biggest CO₂ emitter, SSAB, to achieve fossil-free steel by 2026 should improve the county's score. At the same time, Dalarna scores well on tree coverage and air quality compared to the national and EU medians, and 97.5% of residents define Dalarna as offering good proximity to nature, including parks (Statistics Sweden, 2021_[20]). Yet, of Dalarna forestland, only 11.8% is unproductive. This share decreased by 14% between 2010 and 2020 (Statistics Sweden, 2020_[21]). As a result, monoculture tree plantations are replacing large swathes of old-grown boreal forest. In the area below the sub-alpine mountain, where most industrial wood production concentrates, the mean share of forest aged 0–60 years gradually increased from around 35% in 1960s to beyond 65% in 2017, while that aged from 61–120 years simultaneously declined from 50% to 18% (Angelstam and Manton, 2021_[22]). This has negative implications for biodiversity and carbon emissions. In order not to damage the attractiveness of the territory

³ Policy makers can use the [OECD Checklist for public action to migrant integration at the local level](#) to favour integration and retention of this group.

⁴ According to the International Union for Conservation of Nature (IUCN), natural monuments are protected areas set aside to protect a specific land feature, which can be a landform, sea mount, submarine cavern, geological (eg caves) or living feature. They are often quite small areas and have high visitor value.

with regard to talent and tourists, a compromise will have to be found so that productive activities and those of leisure contributing to the quality of life can coexist.

From recovery to resilience

Global megatrends and crises have different impacts between and within countries. These asymmetric effects risk accentuating existing territorial attractiveness inequalities, thus reinforcing the need for place-based policies recognising a region's varied and unique characteristics. **Demographic change** (including an ageing population) and **climate change** are two megatrends particularly challenging for Dalarna. To ensure that the associated challenges such as labour shortages are addressed and opportunities are embraced, county actors have implemented innovative multi-actor and multi-level policies such as Dalarna's strategy for 2030 (2021[23]) and the related Tourism Strategy (2018[24]) that can inspire territories facing similar challenges. Overall, **attracting and retaining talent is the top priority** since it determines the attractiveness of Dalarna for investors who need workers to run their business, for visitors who need tourism infrastructures well endowed in personnel, and is a prerequisite for good quality public services. It will thus condition the sustainable development of the territory in the long term.

Thanks to healthcare improvements, the share of elderly people (i.e. 65 +) will increase in nearly all OECD regions over the coming decades (OECD, 2019[25]). This comes with challenges, in particular in terms of labour supply in local markets, which if insufficient can endanger the growth potential of firms, push investors to leave, and lead to high unemployment. In Sweden, **Dalarna is among the counties most affected by this generational shift**. It has the lowest share of working age people and should experience over the next few years the highest share of retirees -about 40%. 24% of Dalarna's population is over 65yrs and 27.3% live in north of the county rural areas (ConwayLenihan, McGuirk and McAleer, 2018[26]), while the population of southern and middle Dalarna is younger.

To plug widening labour and skills gaps, talent attraction and retention strategies are crucial elements of a wider policy mix, as recognised by *Dalarna's strategy for 2030*. Despite ageing, outmigration and difficulties to attract Swedes from outside the county, population growth remains positive (+0.4% from 2018 to 2021) thanks to the arrivals of foreigners (often through national dispersal mechanisms), who on average are younger than locals. In 2002, 2.7% of Dalarna's population was born outside Sweden, 15% in 2019 (24% nationally), ranging from 7.5% in Rättvik municipality, to 22.6% in Avesta (Norlén and Penje, 2019[27]). The county needs to create the conditions to encourage more people to choose to live and stay in Dalarna, including younger talent and working age women, who are currently underrepresented in several municipalities. So far, attracting and retaining foreigners has been challenging, in particular youths having sought asylum who upon recognition of their status tend to move to urban areas. Key obstacles to settlement include limited access to housing and lack of job opportunities as well as social integration.

Both public and private local actors are developing attractiveness and retention strategies (Box 2). If jobs remain the main draw for talent looking to relocate, quality of life considerations such as housing affordability, access to quality public services, cultural amenities, social life and environmental concerns, can be the deciding factors when considering options – particularly when job opportunities are equal. For example, many foreign applicants to Hitachi, expressed high health services expectations, while Ovako reported growing demand for international schools. Rekryteringslots Dalarna is an interesting example of local employers joining forces for skills attraction and retention. This economic association is financed by its 48 members: private firms, public agencies, municipalities, and the Region, who together account for about ¼ of all Dalarna's jobs. To make recruitments more lasting, Rekryteringslots goes beyond job matching and includes the entire family of the recruited. Besides being an experience-sharing and mentoring platform for employers on skills supply issues, it offers the following services within a week following recruitments and for 6 months maximum: Support for newcomer's partner to find a job (employers can mention on their job add the possibility for partners to be helped by Rekryteringslots). Since 2003, the match rate between partners and jobs/placements is of 80%; Support in looking for accommodation, schools, and childcare. Basic knowledge of the Swedish language is required. Given the significant recruiting challenges faced by most members, the most in-demand and expanding activities relate to talent attraction: social media campaigns, organisation of college fairs, etc. In 2022, the association expanded to North Dalarna with new staff and 13 employers.

On the bright side, **ageing also opens new opportunities** in rural areas. The silver economy is one such opportunity. As shown by the past Policies Against Depopulation In Mountain Area Interreg project (*Padima*) where Region Dalarna participated together with 8 European regions, as well as experiences such as those of the EU Interreg project, *ICT4SILVER*, implemented in 5 regions part of France, Spain and Portugal, this sector has the capacity to generate new business opportunities to provide a wide range of products and services for an ageing population (e.g. home automation, connected objects, accessible medical care, mobility, security and autonomy). Recognising older people actively contribute to regional and local economies as consumers of products and users of services is a first step.

Because of **climate change**, Dalarna is expected to be increasingly drier and warmer in general, resulting in increased risks of wildfires (Del Fabbro et al., 2020[28]), and more intense precipitation increasing flood risks (Region Dalarna, 2021[23]). This is a direct threat to the well-being of current and prospective residents of Dalarna as climate change can impact the quality of the living environment and affect the sustainability and growth of industries including forestry and tourism, both key to the local economy.

The **tourism sector** in Dalarna is important in terms of employment and revenue generation. The county ranks 3rd for accommodation income per inhabitant, and 4th for total accommodation revenue in Sweden (Tillväxtverket, 2021^[29]). Its “innovative experience” branch stands among areas designated by the EU smart specialisation approach, which helps regions coordinate all investments, as a strategic priority for the county. Besides urban centres, tourism is an important development and diversification lever for some of Dalarna’s territories experiencing industrial decline and depopulation. This is the case although Dalarna’s tourism sector currently predominantly depends on domestic tourists.

While high temperatures directly endanger traditional winter activities like skiing or dog sledding, fires or floods can hamper tourist attraction by causing material damage and tarnishing the destination’s image. An example of the wider impact natural disasters can have for tourism in regions is the 2020 bushfires in Queensland (Australia), which led to considerable booking cancellations in areas far beyond the relatively small area affected by the fires. Similarly, in 2018, Dalarna was among the counties most affected by historic wildfires, with several villages evacuated, and negative impacts on tourism. Arguably more than any other sector, tourism has the ability to impact (both positively and negatively) the very resources (social, cultural and environmental) upon which it depends. **There is a need to diversify and adapt tourism products** – in particular ones linked to skiing - **to a changing climate**. Many ski resorts in the Italian Apennines have for instance decided with the support of EU funds to opt for green and wellness tourism, hence valorising the local biodiversity and traditional handcrafts (Legambiente, 2022^[30]).

For its part, *Visit Dalarna* – the regional tourism organisation - developed a new strategy for 2030 (2018^[24]), which has sustainability as one of three focus areas, together with digitisation and internationalisation. Based on the Global Sustainable Tourism Council methodology, trained staff conduct free sustainability analysis of destinations (municipalities) and of tourism businesses to provide them with concrete recommendation on how to improve their sustainability credentials. Visit Dalarna also has a plan (2022^[31]) to reduce its own environmental impact by focusing on sustainable transport and environmentally friendly local products. The COVID-19 pandemic and related recovery funds open opportunities to develop more resilient business models and alternative products less polluting and dependent upon weather patterns. Of the demand side, sustainability is an increasingly attractive “brand”, including for events, numerous in Dalarna. As done by Corsica in France, a high-end and eco-responsible accommodation chain could be created through a shared label and platform, including in historical buildings (see also Pousadas chain, Portugal, or Paradores, Spain) (OECD, 2021^[32]). Dalarna University’s Centre for Tourism and Leisure Research can help increase the sector’s overall sustainability through skill supply and research.

There is a **housing shortage** in two-thirds of Dalarna’s 15 municipalities, and none have a surplus (Hurvibor, 2022^[33]). As a result, over the past ten years, condominium prices have risen by 204% (highest increase in the country, that at large faces +96%) (Sjöström, 2022^[34]). In parallel, the price of villas rose by 100 %, with extra increases resulting from higher demand for larger accommodation since the pandemic. One brake on construction are costs higher than the value of finished houses. A situation that the war in Ukraine’s impact on building materials prices should aggravate. This alters attractiveness to young people who often have lower budgets: high prices slow the turnover of people from older housing stock to newer ones, which is necessary to have cheap housing options on the market. Lack of housing can hamper attractiveness to investors by hindering talent who might otherwise want to settle in the area. In response to this challenge, Dalarna helps newly hired talent to the region find accommodation for their first 6 month through rental agencies and the provision of two studio apartments. Residential segregation is another challenge facing the sector. Regarding land-use, questions have also been raised about the merits for local authorities of hosting data centres given job creations often fall short of expectations, their detrimental environmental effects and high energy consumption. A partial answer for the future is to choose innovative more climate-friendly projects like the EcoDataCenter over traditional ones.

The mix of well-established companies (notably within the forestry industry) and new actors and investors from different sectors locating their production in Dalarna give testimony to the county’s pull factors: wealth in forests, renewable energy, and industrial and export facilities. For example, Northvolt’s purchase of a paper mill that closed in 2021 to establish a battery production factory to supply electric vehicle manufacturers by 2024, illustrates how **existing sites can be repurposed towards more forward-looking industries**. Further business investments and expansions underway in South Dalarna, such as Hitachi in Ludvika, Google in Avesta, or Outokumpu Stainless in Smedjebacken will continue to impact the region’s investment profile in the coming years (Borlänge kommun, 2022^[11]).

Finally, regional and municipal actors have well identified the issue of low political participation of certain groups, and try tackling it. Region Dalarna aims to increase the number of young people who feel that they have an influence in their municipality, while municipalities like Orsa, Avesta or Borlänge compensate low turnout by undertaking systematic citizen dialogue to discuss municipal planning issues, with youths, the elderly and soon foreign-born population (in Orsa). They also invest in youth by developing dedicated cultural offers. Improving citizen satisfaction with local public services can help invigorate social cohesion, especially in rural areas widely affected by steep drops in trust in last decades (Mitsch, Lee and Ralph Morrow, 2021^[35]).

Enhancing multi-level governance and coordination mechanisms

Regional attractiveness is a multi-dimensional phenomenon, that depends on a high number of actors. Therefore, a coordinated and integrated approach across levels of government, across policy sectors, and across public and private stakeholders (businesses, higher education

institutions, civil society organisations, etc.) is needed. Taking steps to design, implement and monitor coordination mechanisms between employers and the University, between tourism stakeholders, and between municipalities could help address existing challenges.

As previously mentioned, first challenge Mid-2022, the number of vacancies in Dalarna was two times higher than in 2017, hitting both the private and public sectors (higher for the former) at all skills levels (Statistics Sweden, 2022[36]): from midwives, civil engineers or police officers to plant operators, floor layers or payroll administrators. In view of investments to come, recruitment needs should further intensify. **Enhanced coordination between the education system and employers can help address labour shortages** in several ways. First, by making education more responsive to labour market needs, and thus more attractive to students. For example, the dialogue between local firms, such as Northvolt and Hitachi Energy, and Dalarna University (DU) helps ensure education programs are aligned with the skills. Besides plugging labour gaps, this helps retain students in the county after the graduation. Considering the variety of positions to fill (not all jobs require university degrees), other training providers must also join the collaboration, as well as smaller firms. The University of Manchester, UK, thus also involves SMEs in curriculum development. Second, by leveraging students and graduates to transfer knowledge through internships, or part-time and/or post-graduation agreements (

Box 1) to improve student retention in the region. DU's industrial PhD students can get part-time contracts with companies. A new government bill will require regions to actively work to match labour market skills needs with educational content in secondary education and vocational training. Currently, only adult education considers it.

Enhanced coordination between the education system, employers and the foreign-born population can also mitigate labour shortages. The relatively low and decreasing unemployment in Dalarna veils a large gap between the unemployment rate of native born (2.3%) and that of foreign born (15.2%) residents, which is larger than for Sweden, where the figures are 2.5% and 11.9% respectively. These numbers reflect the extent to which local employers demand specific skills and credentials that foreigners might not possess or may not be formally recognised in Sweden. Thus, the share of employees working in occupations corresponding to their education is lower in Dalarna than in Sweden at large, with lower rates for foreign-born people, and among them people born in Africa (Statistics Sweden, 2020[37]). Therefore, policies to enhance foreigners' access to the labour market and to positions they have the skills for can complement attractiveness policies to tackle labour shortages. They will require good coordination between education actors, employers and the beneficiaries. Two main areas are the co-development of systems to validate the skills and diplomas of foreign-born residents to combat the underutilisation of existing competences, and actions to incentivise youths to pursue their studies.

Increased collaboration between the education system and employers can also ensure that R&D serves to improve private and public sectors' products and services, and thus generate societal and economic value. Data show firms who cooperate with universities are more innovative, in particular in terms of environmental innovations, increase their sales and economic benefits (Arroyave, Sáez-Martínez and González-Moreno, 2020[38]). While innovation benefits also touch the public sector and can for instance lead to improvements in the reach of public services to more remote areas, promoting innovation is not a straightforward exercise given the different functions and missions of multiple actors. At the national level, Vinnova, the innovation agency, promotes collaborations among universities, research institutions, industry and public services, in particular to identify solutions to emerging social challenges including an ageing population. Vinnova notably stimulates the use of research by making long-term investment in early-stage R&D and by developing meeting places.

Box 1. Knowledge Transfer Partnerships

Inspired by an [Innovate UK programme](#), Dalarna University (DU) started a Knowledge Transfer Partnerships (KTP) initiative in 2012, to foster knowledge exchange between the academia and Dalarna SMEs. The KTP helps recent graduates obtain 1-2-year contracts with participating SMEs to carry out strategic development projects, within, for example, market or product development. Past energy-related projects include reducing manufacturing waste or studying the feasibility for a whole residential area to go 'off grid'.

Participants get support from an academic coach, a DU supervisor (usually researchers) and a business coach. Participating companies pay half of a recruit's salary, the Swedish agency for growth (via the ERDF) and the Region in which the project is placed co-fund the rest. DU coordinates all KTP projects in the 7 Swedish regions. Around 100 companies have to date participated in this initiative.

Most KTP lead to full-time recruitments, thereby solving some labour shortages problems. In most recent Dalarna KTP (Science and Energy 2.0), 80% of graduates were offered jobs. As many participants come to Dalarna specifically to work on the project, KTP are a good way to attract young talent. The KTP also benefit firms in terms of profit and innovation, and universities through the academic coaches who ensure knowledge and experience are transferred back to the university, either creating further research ideas or being used in the students education.

Source: <https://www.du.se/en/about-du/this-is-dalarna-university/collaboration-networks-and-centres-of-excellence/knowledge-transfer-partnerships-ktp/>

Dalarna is quite heterogeneous in terms of **collaboration in the tourism sector**, with distinct sites and activities and a multitude of actors. Some projects have emerged thanks to strong collaboration between different levels of government and local actors. The construction of the Sälén airport, for example, is based on a public-private partnership, involving local companies (ski resort owners), destination companies, Swedish and Norwegian municipalities, the EU and the Swedish government, as part of the national transport plan. Besides, local actors joining forces create innovative tourism products such as the increasingly popular rural Harvest Festival (Pashkevich and Scott, 2021^[39]), bringing together food industry actors from three South Dalarna villages to valorise their products by inviting visitors to their estates.

At the county level, tourism development is somewhat fractured. Since 2009, Visit Dalarna develops and markets the destination nationally and internationally. It is owned by the municipalities and cooperates with about 800 companies. Despite many achievements, the diversity of the sector's needs makes it hard to implement a coherent and holistic regional strategy. Different places have their own goals and resources. For instance, northern parts, supported by the supranational and international levels, strive to position themselves as truly international tourist destinations, while southern ones tend to rely on closer markets and a more traditional representation of Dalarna. Therefore, Visit Dalarna markets products or experiences such as Biking Dalarna or Taste of Dalarna rather than locations and geography. To become "Northern Europe's most attractive destination offering genuine experiences all year round" (Visit Dalarna, 2018^[24]) it will be necessary to find synergies, in particular to ensure basic framework conditions are in place: skills supply, funding and infrastructure.

Box 2. Inter-municipal cooperation to address attractiveness issues

Falun-Borlänge region

This local development company owned by the municipalities of Falun, Borlänge, Gagnef and Sätters, originates from a common understanding that declining industries create new challenges. It works to solve shared challenges around competence supply, business development, and infrastructure and housing construction. Some projects extend to other Dalarna municipalities who provide complementary finance. Competence supply work is important and includes projects such as:

- **Career guidance:** 10 municipalities and 27 companies present local employment options to young people.
- **Enhance foreign-born residents' labour market integration:** React-EU-KOM project offers a 5-month Swedish course and information about the local labour market. Most participants are highly educated partners of people already working in the region.
- **In-firm education:** Support firms during the pandemic by training + 730 people according to their needs: online marketing, leadership skills, driving a forklift, etc.
- **Leverage the diaspora:** Attracting people who left Dalarna, in particular to pursue their studies, to come back by reaching out through job fairs and events in Stockholm.

On the infrastructure front, it supports municipalities to obtain regional, national and EU financial support for projects. For instance, it provides the media and politicians with information on the value of local projects such as the small Borlänge airport, or helps municipalities apply for funds to build electric car charging-stations.

Samarkand2015

Created by Ludvika and Smedjebackens municipalities, Hitachi Energy and Ovako to tackle common issues, the forum now counts about 60 members (private, public and academic) taking part in various working groups focussing on: youth, infrastructure/housing, communication, digitalisation, sustainability, Japan and a HR networks. Some its projects include:

- **Job-for-both:** foreign partners of new recruits are offered language courses, individual coaching to find a job, start a business, speed dating with employers, inter-cultural communication etc. In 2021, it assisted 145 newcomers from 42 different countries (many from India).
- **Support female unemployed refugee:** language training, entrepreneurship, personal coaching, validation of competences.
- **Support youths:** programming courses for teachers in pre-school and grammar; participation as labour market consultants in High school programmes; providing a Mathematic Centre for high school students and a University Centre for students to study and take exams in Samarkand facilities. An international school project is also underway for 2024, which will match demand from foreign parents hired in the region. Given young rural entrepreneurs tend to have less access to training activities in Europe before starting a firm (OECD, 2022^[9]), targeting support to them can create growth and innovation results.
- **Support innovation:** The High Voltage Valley is a platform for collaboration between companies, universities and public actors to develop electric power technology.

Besides conducting local projects, Samarkand serve as a coordination platform and spokesperson for its members seeking regional, national and EU financial funding for infrastructure, housing construction, etc.

Source: <https://www.samarkand2015.com/sv-SE>; OECD roundtables in Dalarna

Inter-municipal cooperation (IMC) can help address many challenges facing localities. Investments needed to enhance the quality of life for residents (broadband, roads, housing, cultural amenities, etc.) are lagging behind other areas, in part because many municipalities face funding shortfalls in a context where shrinking populations make returns on investments are uncertain⁵. By enabling risk and cost sharing across investment beneficiaries, IMC can help mitigate this issue, facilitate the provision of joint services, ensure investment at an efficient scale, and avoid fragmentation of investment projects (OECD, forthcoming). Compared with municipal mergers, IMC are relatively straightforward to establish, and can mitigate skills shortages by sharing their staff's expertise in some domains and reduce territorial disparities. Box 2 presents successful examples of local authorities in Dalarna coming together to tackle common challenges. Nevertheless, they come with administrative and financial costs as well as transparency and democratic challenges and should therefore concentrate on specific tasks or investments projects. In Lithuania, the central government established in 2019 the Tauragė+ pilot project to promote IMC in four municipalities that work together on 3 priorities: investments attraction, mobility and public services such as elderly care and retirement houses.

Finally, **coordination instruments between levels of governments could ensure the specific conditions and needs of Dalarna are best mirrored by investment projects and strategies**, EU funds included. Indeed, many quality-of-life domains key to attractiveness depend in Sweden on good multi-level governance coordination. It is the case of housing. Municipalities are responsible for planning land use, including the development of the housing stock but many lack the necessary budget. In Dalarna, it is expected that among the 27 construction projects that applied in 2022 for national support only few, if any, will receive money since housing shortages are widespread in Sweden. To avoid some municipalities feeling neglected, tools to better share information with the region and the national level could be implemented. Overall, Sweden is a unitary, decentralised, and deconcentrated country. Over the past two decades, a growing number of responsibilities and in particular regional development ones in 2017 were transferred from County administrative boards (CAB), which represents the central government at the regional level, to County councils (CCs), which are elected regional governments responsible. Thus, the elaboration and adoption of the first regional development strategy by the CC is quite recent in Dalarna. Coordination bottlenecks might appear with time and should be monitored.

Policy considerations

The OECD case study suggests policy considerations to enhance the impact of the internationalisation and attractiveness strategies of Dalarna county vis a vis investors, visitors and talent.

- **Create regional hiring markets to tackle labour shortages facing a variety of professions in specific sectors.** In Portugal, the largest hiring hub in tourism, Bolsa de empregabilidade (Employability Exchange), promoted by Forum Turismo, now helps companies recruiting prospective staff activities in regions. Its 5th edition brought together 180 companies offering more than 20,000 jobs and internships. Besides physical fairs, it operates a digital hiring platform. Such job markets show prospective talent that getting a job in Dalarna means joining an employment pool in which many other interesting jobs await them for future career steps. It also helps create employer-branding strategies rooted in the same territorial assets, as done by several French local public administrations.
- **Improve proximity between academic research and the public and private sectors, to create an environment for FDI and innovation to flourish, with a focus on generating societal and economic value.** Firms and municipalities often lack the capacity to liaise with universities and should be supported. Already exploited channels, such as the labour mobility KTP (Box 1) or the institutional engagement with local industries regarding training can be extended and replicated with public service actors. Research mobility including permanent and temporary assignments of university researchers working in private and public organisations can help foster innovation and vice-versa. At MIT (US), researchers' employment contract covers only 9 months per year, the rest of the time can be filled by consultancy work. MIT provides strong financial incentive to academics to bring in industrial research income: it removes reaching responsibilities for those who bring more than USD 2 million, and administrative responsibilities for more than USD 4 million. In Italy, among co-operation channels with firms, the Parma University (Emilia-Romagna region) has created a coordination table TACRI6 involving industrial associations, public research institutes and the university's technology transfer offices to centralise and broker all requests for collaboration coming from the productive sector, including from the agri-food industry (OECD/European Union, 2019^[40]). This helps transforming market players' needs into research projects. At the same time, in many OECD regions, collaboration with university research increasingly serves to improve production processes, business models and social and institutional innovations that are not profit-driven and help tackle large societal challenges. Agreements bringing together university researchers and public and private actors could stipulate that R&I results must align with Dalarna's wide sustainability objectives. Since geographic proximity facilitates informal interaction channels, science parks would benefit from being located in close proximity to Dalarna University's new campus.

⁵ The fact the Swedish Local Government Funding Agency and private actors base their loan decisions more on retroactive statistics than forecasts poses problem for municipalities that have been facing demographic decline. Too slow or too little investments could mean municipalities will miss important windows of opportunities.

⁶ Tavolo di Coordinamento Della Ricerca Industriale di Ateneo

- **Address tourism seasonality to enhance attractiveness of employment in the sector and reduce societal and environmental pressures during peak periods.** Seasonal differences are high in Dalarna, with a great concentration of tourism in winter and summer seasons. In 2021, about 7 times more tourists came in February and July than in November. Yet, space and the experience of a unique natural environment hold good potential. In terms of attractiveness, year-round tourism will enable tourism business to offer more stable jobs and thus hire and retain staff more easily. It may also reduce societal and environmental pressures during peak seasons for the benefits of local inhabitants' well-being. Some places like Holstebro in Denmark tackle seasonality by extending the existing season at both ends. Others target new tourist seasons outside the usual peak months by developing new products, or new target groups. Thus, in Norway, 18 stretches of road from north to south passing some of the country's most beautiful natural landscapes were selected from existing infrastructure to create by 2023 the Norway National Tourist Routes network. The aim is to invigorate villages and towns in rural areas. Along each stretch, viewing points, rest areas modern architecture, and artworks that reinforce the visitor experience of the landscape are being constructed. Beyond enabling visitor attraction, a common brand can help strengthen the local identity and increase retention of people by increasing locals' ownership of their common culture. Besides, the Finnish region of South Savo aims to target school camps more.
- **Increase access and use of mobile and broadband connections to ensure inclusive development.** Because in Sweden commercial actors are in charge, most territories not covered by a mobile network (white area) are in sparsely populated places neglected by operators because return on investment may be limited. Consequently, these areas largely depend on state support, which often requires collaborations not easily achieved between the state, commercial actors, and individuals. Yet, high digital coverage is critical for existing residents, while being a prerequisite to attract investors, talent, and visitors. Good digital infrastructure will in particular prove to be a key enabler of rural innovation (OECD, forthcoming[7]) and enable Dalarna to best capture the flux of teleworkers looking for more space and access to nature as well as better attract tourists.

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