



Regional innovation strategy 2022–2030

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Preface

Västerbotten is an innovative and dynamic region, and the inhabitants have been creating the conditions for growth, competitiveness and attraction ever since the 1600s. Throughout history, the residents have successfully identified and acted on important development trends and shifts in technology, which has ensured the ability to renew and transform the region in line with changing times. Access to natural assets such as forests, minerals and water has enabled the production of fossil-free electricity, and forestry and land-based products. Metals are refined and recycled. Strong companies and important knowledge and skills have been built up and have contributed to Västerbotten's present status as a leading region in Europe's green transition. In parallel with this development, the areas of strength that are derived from the region's rich cultural and knowledge-based resources have also developed and grown. Hospitality, life science and digitalisation are good examples of such areas.

In European and Swedish indices, Västerbotten currently ranks as an innovation leader, with competitive public innovation environments in the form of, primarily, universities and university hospitals. Västerbotten is also ranked highest of all European regions in the EU's index for social development, which shows that there are good living environments and development opportunities for those of us who live in the region. We have a range of living environments, with cities, communities and rural settlements, stretching from the mountains to the coast.

At the same time, maintaining the county's good position and creating long-term sustainability provide major challenges. Västerbotten has a well-developed innovation support system that is primarily linked to innovations associated with academia and dense urban environments, which entails major differences in conditions and capacity throughout the county. The world around us is experiencing rapid development, and competition for resources and people is becoming increasingly fierce. Västerbotten must be attractive to investors in research and business, but, above all, it must be able to attract people who will want to live and work in the county.

We must continue to think in new ways, to question and to re-evaluate. We must continue to develop our ability and capacity to refine and further develop good ideas into innovations throughout the county. The regional innovation strategy constitutes an important platform for Västerbotten's overall work with innovation.

Västerbotten has a diverse array of actors that are important for innovation development – from academia and the public sector, to the non-profit/voluntary sector, business and creative individuals. Many of these have been involved in the development of the regional innovation strategy, and we hope that it will provide them with guidance, inspiration and a platform for collaboration.

Rickard Carstedt
Vice Chair

Anna Pettersson
Regional Development Director

Key concepts

Sustainability is defined in the strategy as the overall sustainability goals in the regional development strategy (RDS), which in turn are based on the UN's Global Goals for Sustainable Development in Agenda 2030. A 'living place' is a place where people want to stay – either for a brief visit or for life. It is the place that has the right conditions. A 'circular place' is a place that manages the climate transition and creates economic opportunities and infrastructure in such a way that safeguards natural resources and ecosystems. This enables Västerbotten to be a living place that future generations can visit, or in which they can develop, work and grow old.

The use of the term **innovation** in the strategy refers to a new or improved product, service or process that differs significantly from previous products, services or processes, and that has been made available to customers and users or implemented in operational activities.¹ There are many different types of innovations, including product and service innovations, process innovations, organisational innovations and broad system innovations. Innovations that help to resolve social challenges and increase people's quality of life, rather than generate economic benefit, are usually referred to as social innovations. Innovations that profoundly and radically change and transform entire sectors or systems are usually referred to as system innovations, and these often involve many actors. Regardless of the type of innovation, the core of the concept concerns that which is new, useful and beneficial. The 'new' aspect here means that innovation differs from improvements or increased efficiency within existing products, services and processes, or from research and inventions that may represent new knowledge or new products, but have not been implemented or introduced to a market. Being 'useful' and 'beneficial' means that the innovation both meets genuine needs and creates value for people and society.

Innovation capacity is defined in the strategy as the capacity for renewal and transformation by converting something that is new and useful into actual benefit. 'Renewal' here refers to a competence of being able to identify development trends and societal changes, and to then act on these in order to renew or adapt one's operations, business model, product or service. 'Transformation' refers to the ability to change one's operations or society at large in a more profound way. This is often described as passing from one stage to another. This could, for example, involve a shift to digital business models or services, a transition to a circular economy, or a shift from reactive to proactive care and preventive health.

In this strategy, the **innovation ecosystem** is defined as the regional ecosystem. The ecosystem features a diverse array of actors who, through their activities, affect the innovation capacity of the region. It comprises several innovation systems that can be

linked to different industries or themes. It consists of companies and organisations that develop and implement new ideas and knowledge environments, and public actors who demand or provide competence. In some cases, there is close collaboration and cooperation between actors, whilst in others they act independently of each other. Regardless of this, all of them affect the ecosystem's ability and capacity for innovation.

An **innovation support system** can be described as the actors, cultures and environments that promote innovation. It can involve both digital and physical meeting places for different actors whose working methods make it easy to work with innovation, both within and between citizens, companies and public organisations. An important element of the strength of the support system is its ability to pick up and further develop new ideas. An innovation support system has many similarities with structures that support business or promote enterprise, but it can be said to focus more on the stimulation and further development of new and more experimental ideas and development initiatives. Historically, it has also focused on greater knowledge content and connection to research environments, but now increasingly also involves socially beneficial innovations and user needs and processes that are characterised by inclusion, collaboration and new perspectives.

Annex 2 provides an outline of Västerbotten's current innovation support system, divided into the development phases in which the actors provide support.

Smart specialisation is a method of strengthening the region's global competitiveness by identifying and prioritising those areas of strength that have the potential to drive transformation and sustainable economic renewal, and to pool resources to focus on these. A smart specialisation area is cross-sectoral, and is narrower than an industry but broader than an individual research environment or company.

Smart specialisation is a key component of the EU's cohesion policy, and is a tool for steering the use of EU funds. This method will help regions and Member States to utilise the skills, businesses and resources that are already available in the region for the development of new niches and business areas, but also to be prepared for and exploit any new areas that arise in conjunction with changes in business and society.

Smart specialisation should unite different actors towards a common goal and vision. The work is exploratory, which means that the starting point is that these areas change and are reinterpreted in line with changes to the knowledge of results, effects and needs. Initiatives and priorities that form the basis of the development of the region's smart specialisation are identified within the framework of the regional innovation strategy.

¹ OECD/Eurostat (2018), *Oslo Manual 2018*

Innovation is required to achieve development goals 1.

The ability and capacity for innovation is key to the achievement of the regional development goals in Västerbotten. The global transition to a sustainable society requires new ways of working, producing and living, in the same way that increasing global competition and rapid societal changes require the whole of society to have the capacity for renewal and transformation through innovations.

The regional innovation strategy (RIS) has been developed with the aim of pooling resources around innovation as a tool for achieving regional, national and global goals. The strategy is based on the focus areas and prioritisations of the regional development strategy (RDS), and has been developed in broad dialogue with actors from the public, private and non-profit/voluntary sectors.

In the strategy, the word 'region' refers to a geographical area – usually the county of Västerbotten or the north of Sweden. 'Västerbotten' refers to the county of Västerbotten.

The overall focus is to support the realisation of the overall sustainability goals in the regional development strategy, 'A living

place' and 'A circular place', that link to the UN's seventeen Global Goals for Sustainable Development in Agenda 2030.

The objectives and initiatives of the regional innovation strategy take into account the focus areas of the regional development strategy: the creation of a cohesive region, equitable and equal inclusion, and taking a pioneering role in the transition. Innovation capacity is important for the achievement of the goals in all areas of society, and the regional innovation strategy therefore contributes to the achievement of all the priorities of the regional development strategy.

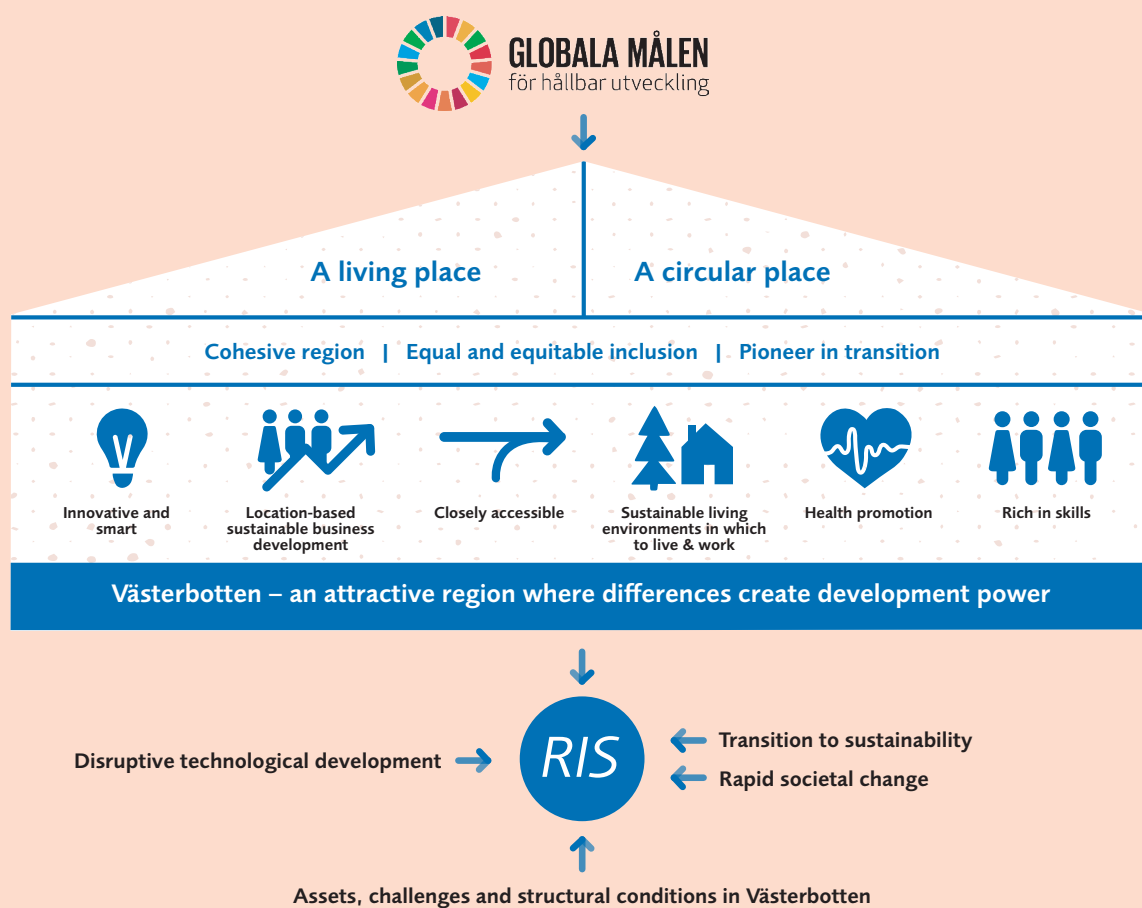
The overall vision for the regional innovation strategy is for Västerbotten to be **an innovative and smart region**, which means that the region shall be a place for new ideas and broad perspectives, with great desire and ability for renewal and transformation. This is to be achieved by means of initiatives that are aimed at two objectives: **An innovation engine for sustainable development** and **An innovation ecosystem with strong and inclusive innovation processes**.

An innovation engine for sustainable development

- Pool resources to focus on cross-sectoral collaboration projects linked to societal challenges that require innovative system solutions, and the establishment of collaboration platforms.
- Create innovation platforms, test spaces and policy labs or other methods in order to identify or test experimental ideas and models.
- Establish or further develop meeting places that contribute to more cross-sectoral collaboration, new networks or collaboration concerning development initiatives.
- Develop and strengthen social sustainability in processes for transformation and renewal, and implement targeted initiatives for industries and education.
- Improve society's capacity and ability to embrace new innovative technologies.
- Establish or further develop knowledge environments within academia, the business sector and society.

An innovation ecosystem with strong and inclusive innovation processes

- Create or further develop structures and methods for innovation collaboration between the private, non-profit/voluntary and public sectors.
- Develop processes for smart specialisation, based on the region's areas of strength.
- Give more innovators the opportunity to realise their ideas by creating an equal and equitable support system.
- Further develop the county's incubators for increased global competitiveness, and establish incubators or accelerators that are linked to the strategy's areas of strength.
- Ensure good access to capital.
- Collaborate or make connections with meeting places and platforms outside the region, both nationally and globally.
- Develop systems to meet rapidly changing needs for skills, and needs that arise due to technology shifts or major establishments.



RDS

The regional innovation strategy (RIS) builds upon global and regional goals, external factors that have a major impact, and local and regional challenges and opportunities.

A strategy that brings the region's actors together

The regional innovation strategy shall contribute to increased power by means of strengthened interaction and collaboration among the large number of actors who together make up the region's innovation ecosystem. **Companies and entrepreneurs** have a key role in the commercialisation of innovations, in driving the transition work, and in creating or scaling up innovations. **Universities** are important for the generation and dissemination of new knowledge, ensuring a highly educated workforce and creating innovation support. Not least, they contribute to increased dynamism by bringing new people to the region. The **non-profit/voluntary sector**² represents an important driver of innovation (not least for social innovations), and constitutes an important knowledge bearer in innovation processes. The **innovation-supporting actors** that support enterprise and innovation development, such as science parks, incubators, accelerators, test environments, networks, clusters/meeting places and financiers, are key players in giving people opportunities to realise their ideas, and in creating an innovation-promoting culture in the region. **Public sector** agents, in the form of municipalities, regions and authorities, have several different roles in the innovation work – not only as innovators and demanders of innovative solutions (for example, via procurement,

coordination, collaboration and innovation partnerships), but also as supporting actors. Finally, the **inhabitants** of the region are a source of innovation as co-creators in open innovation processes.

The regional innovation strategy represents a common platform for the development of Västerbotten's innovation capacity, where all the region's actors shall feel involved. By identifying challenges and strengths in the region, the strategy provides a picture of the types of issues that Västerbotten needs to develop in collaboration. The strategy also contributes with guidance regarding the priorities of initiatives such as projects and other interventions, which provides the opportunity for actors in the county to relate to the strategy in their initiatives and to contribute to the county's common goals.

The strategy also provides Region Västerbotten with a basis for the priorities and working methods needed to drive regional innovation leadership in the area. Region Västerbotten shall play a coordinating and supportive role, both for the actors in the county, with regard to collaboration and cooperation in various innovation issues, and externally with actors in other regions and countries.



The regional innovation strategy

Will strengthen the region's innovation power by:

Identifying priority goals and initiatives


Strengthening collaboration and interaction
in the innovation ecosystem

Guiding, inspiring and prioritising initiatives

Being a foundation for regional innovation management,
coordination and collaboration

² The term 'non-profit/voluntary sector' is used here synonymously with the terms 'civil society' or the 'third sector'. It is defined as an arena that is separate from the state, the market and the individual household, in which people, groups and organisations act together for common interests. (En politik för det civila samhället, prop 2009/10:55)

Those operating within the non-profit/voluntary sector include non-profit associations, economic associations, non-profit foundations and registered faith communities, as well as networks and other actors. The organisations are independent and formulate their own roles and missions.



Innovations that contribute to resolving the major societal challenges that characterise our time.

The third generation of innovation policy

1940–1990

1st generation innovation policy

- Linear innovation
- Focus on investment in research, research policy
- Academia and research institutes

1990–2020

2nd generation innovation policy

- Innovation systems
- Focus on benefits/commercialisation of knowledge
- Triple Helix – networks between research, business and society

2020–

3rd generation innovation policy

- Renewal, mobilisation concerning common goals
- Focus on societal challenges
- Quadruple Helix – broad perspectives
- Broader view of key actors

The development of innovation policy. From a linear view to a focus on being part of the solution to major societal challenges.

Global trends that affect the need for innovation

3.

Constant and rapid change makes innovation a fundamental societal capability

There are many trends and events that affect today's societal development. Development can no longer be expected to be linear, but must increasingly be built around the ability to quickly identify, understand and act on disruptive change.³ This requires environments and a culture that are characterised by a more testing and experimental approach, and a regional innovation leadership that is capable of mobilising all types of actors. At the heart of innovation policy is the capacity of the regional ecosystem to formulate the desire and direction for broad processes with actors from different spheres of society and geographical areas, and to create understanding and legitimacy for this.⁴

A rapid and global sustainable transition requires renewal and transformation

In recent years, the need for initiatives to meet the major challenges related to climate, health and social sustainability has characterised societal development. Sustainability will be crucial for the competitiveness and attractiveness of organisations. Businesses in all spheres of society are affected and must quickly develop their ability to change their models for the running of their operations. With regard to environmental and climate sustainability, there will be a need for innovations and investments

in new production technologies and systems, circular material flows and circular production systems, and the integration of sustainability into all operations. Even if powerful efforts are made in the near future, significant investments will still need to be made in order to adapt social planning to the effects of a changing climate. Sustainability perspectives are interrelated and affect each other, and they often require broad initiatives in several areas in order to have an effect. Development in areas such as gender equality and integration is progressing, but much remains to be done in order to achieve the goals.⁵ Different groups have different impacts on the environment and climate, and they are affected in different ways by the interventions. This means that the focus on solutions and responses to challenges may differ, depending on how and by whom the initiatives are formulated.

Rapid technological development drives new business models and challenges established systems

Technological developments, such as digitalisation, data-driven innovations, AI and automation, have knock-on effects on all parts of society, both in terms of the potential for increased efficiency, quality and opportunities, and in terms of rapid changes in the labour market, new needs for skills, and challenges concerning the law and ethics. The Swedish Agency for Economic and Regional Growth⁶ has identified a number of technologies

³ Reglab (2019) – Vart är vi på väg? Slutrapport från framsynsprocessen Region 2050

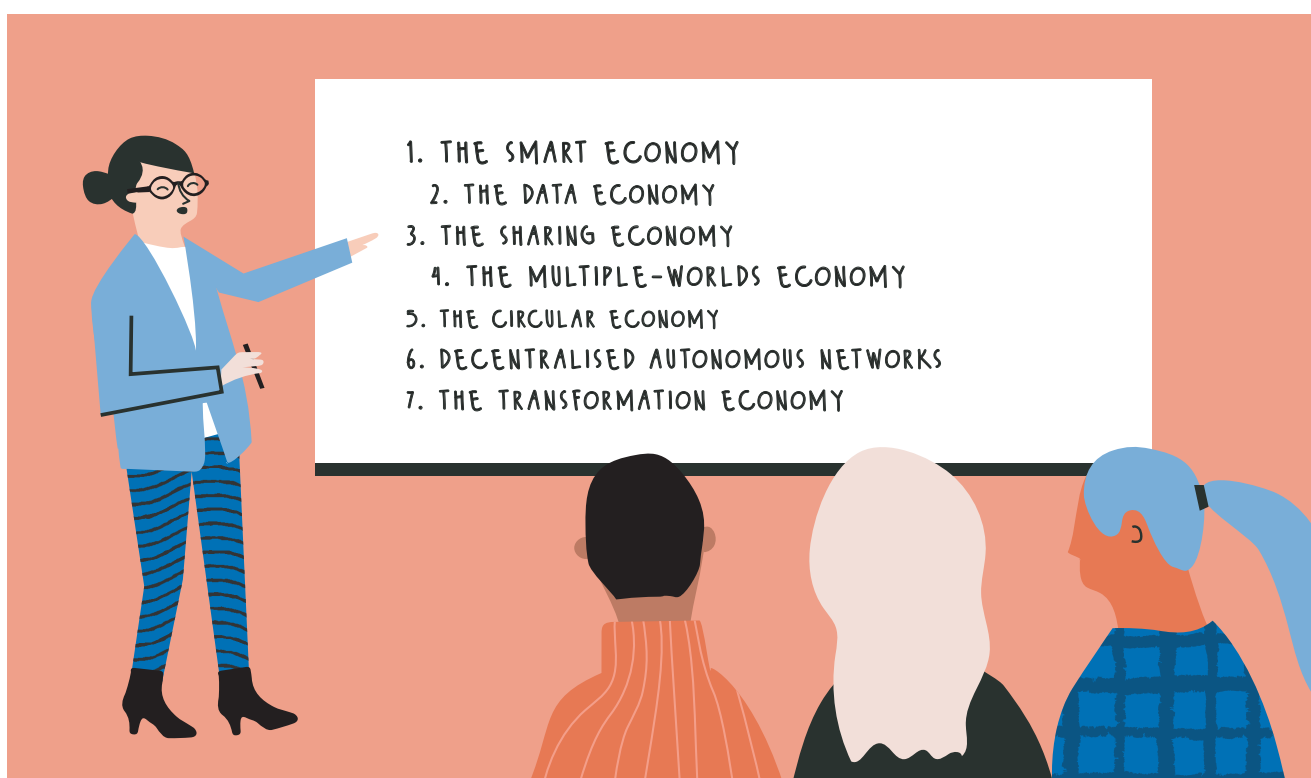
⁴ Tillväxtnalys (2020) – Den tredje generationens innovationspolitik

⁵ UN: <https://unstats.un.org/sdgs/report/2020/goal-05/>

⁶ Swedish Agency for Economic and Regional Growth (2019) Utvecklingskraft i hela Sverige 2030

that will drive productivity development and be of central importance to the achievement of an increased standard of living: developments within industrial robots, artificial intelligence (AI), automated vehicles and transport (self-driving cars and drones), and additive manufacturing (3D printing). Precision medicine is an example of a technology that will affect people's health and welfare. The technological development, together with new business models, leads to new opportunities to deliver goods and services, and affects the demand and requirements for companies and public actors.

With rapid societal and technological development, certain groups are at risk of exclusion – digital exclusion, for example, or as a result of the norms and attitudes that are built into automation and AI solutions or research. The planning and introduction of new technologies in different operations is influenced by the fact that those groups or organisations who are already technology-savvy often find it easier to formulate their needs and demand new technologies, to the detriment of others who are not as accustomed to technology or who belong to sectors that are not considered to be innovative.



Seven examples of different economies that have emerged and may become more common as a basis for business models.

Smartness economy: Artificial intelligence will be for the 2000s what electricity was for products and services in the 1900s. In the same way that the addition of electricity to already existing products or services was revolutionary (e.g. washing machines or electric hand tools), the application of AI can transform today's existing tools by adding smartness.

Data economy: Access to large volumes of detailed data provides opportunities to develop deep knowledge of individuals' habits and preferences, which creates opportunities for innovative societal services and business models.

Sharing economy: Using data (e.g. on supply and demand), digital platforms bring together billions of connected people, and enable business models and financing models where it is individual residents who rent out rooms, drive taxis or finance start-ups all over the world, without it being coordinated or run by big companies with large physical assets and capital.

Multiple-worlds economy: People exist in multiple digital dimensions at the same time, and can be different people on social media and in the real world. With virtual reality and augmented reality, several layers are added

to this that reduce the difference between the physical and digital worlds. In each new digital world, a whole new economy is created, with goods and services.

Circular economy: A circular economy can be likened to a cycle. Instead of manufacturing, buying and disposing of items, in a circular economy everything that has been produced is used for as long as possible. And when the items eventually become worn out, they are reused and recycled as far as is possible, over and over again.

Decentralised autonomous networks: By combining AI with blockchain technology, organisations are created that, with traceable/tamper-proofed agreements and documents, control how the company or operations should function. They make independent decisions and run the day-to-day operations without the need for employees or managers.

Transformation economy: Consumers now build a closer relationship with companies, instead of just buying a product or service. This contributes to personal improvement or development, or being part of a global movement (e.g. for the green transition or better health).

Challenges and opportunities for greater innovation in Västerbotten

4.

Strong starting point but large intra-regional differences in capacity and needs

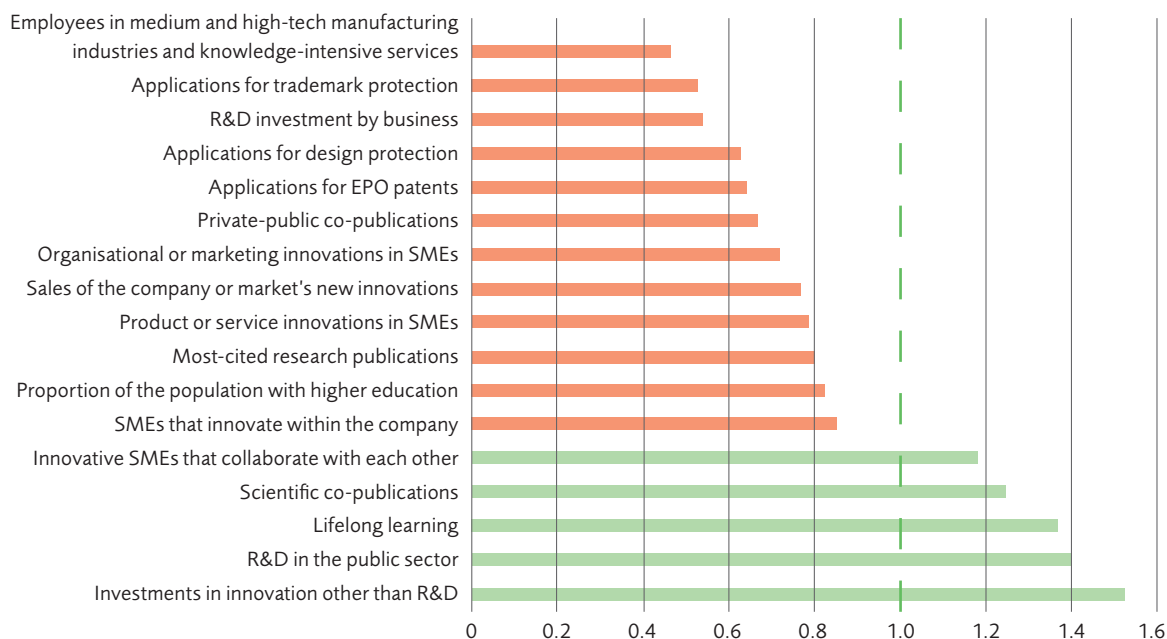
Västerbotten is characterised by a diverse array of living environments, from the mountains to the coast, and large intra-regional differences between dense environments with a large concentration of people, companies and organisations, and sparse environments characterised by a smaller scale and fewer support structures and institutions in the immediate area. This means that the challenges within the region are also different. With regard to the challenges facing public actors (such as municipalities), smaller municipalities generally have very limited resources to prioritise systematic innovation work, or to collaborate with wider society in innovation processes, whilst the larger municipalities may instead find it challenging for new ideas to make an impact in their large organisations. For business or civil society, the physical and cultural distances from universities or university-related support structures can affect the opportunities to apply for or participate in the support structures. At the same time, the region's well-developed broadband infrastructure means that there are good conditions for digitalisation, and innovative and distance-independent services and working methods.

In relation to global trends, Västerbotten currently experiences both challenges and opportunities linked to being an innovative and smart region. Västerbotten and northern Sweden currently

represent a centre for the green transition, with major investments in the region, not least in green energy. Upper Norrland, which comprises the counties of Norrbotten and Västerbotten, has been ranked as Europe's best region in which to live and work, within the framework of the EU's Social Progress Index,⁷ which, in addition to contributing to an inclusive innovation-promoting climate, also provides the conditions for more people to choose to live and work in the region. Upper Norrland is also ranked as one of Europe's and Sweden's most innovative regions. In comparison with the EU's other most innovative regions, Upper Norrland is relatively strong, especially in terms of resources for research and education, but does not have the same relative strength in innovation indicators linked to business.⁸

The region's business sector is characterised by diversification, drive and many strong niches, not least linked to natural resources and knowledge resources.⁹ Companies have an important role to play as drivers and interactors within innovation systems, and are key actors in the work with transition and sustainability in Västerbotten. At the same time, there is also potential to strengthen the companies' innovation capacity by, for example, strengthening collaboration between companies on innovation issues, further developing and ensuring that support structures meet needs and opportunities throughout the region, and ensuring that more perspectives are catered for by means of equality and gender equality.

Upper Norrland's strengths and weaknesses compared to Europe's innovation leaders

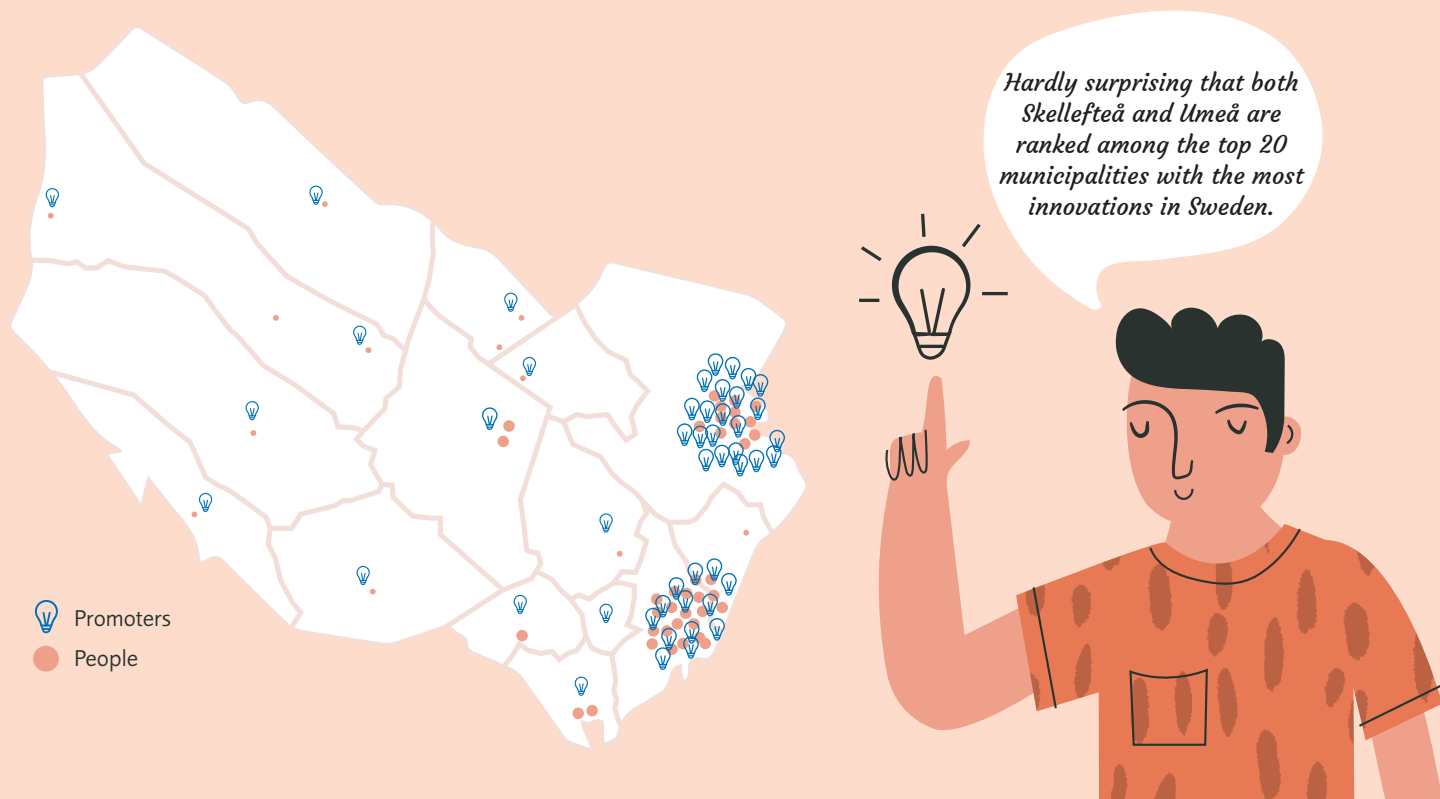


Comparison of the region's innovation strength in relation to Europe's innovation leaders (index 1.0). The red bars show areas where the region's innovation capacity is lower, and the green bars show the areas in which the region's capacity is higher.

⁷ EU – Social Progress 2020

⁸ EU – Regional Innovation Scoreboard 2019

⁹ OECD (2017) Territorial Review NSPA



Västerbotten has a strong innovation support system that is mainly located on the coast and has close links to the Swedish University of Agricultural Sciences, Umeå University and the Luleå University of Technology campus in Skellefteå.

Strong knowledge environments and support systems

There are three universities in Västerbotten: Umeå University, Luleå University of Technology and the Swedish University of Agricultural Sciences. The universities have several important roles to play in the ecosystem – not least the role of generating new knowledge, where the regional proximity provides the potential for linking research with societal and business needs, as well as for building research infrastructure, test environments and meeting places. At the same time, the region's strong research environments make an important contribution to global development, and bring expertise to the region. Academia also has a key role in the supply of skills by providing a workforce with higher education, and attracts researchers and students to the region.

The region features a concentration of strong innovation environments and support structures, which are primarily connected to the universities, hospitals and larger towns. The dense innovation environments are an important resource for driving knowledge-intensive innovations, and provide the opportunity to provide customised support to companies and innovation environments via incubators and other structures. The well-developed IT infrastructure and knowledge of digital technologies that exist in Västerbotten provide the conditions to be able to benefit from these structures throughout the region, although the forms of ensuring support structures that can meet the local context and needs may require both physical presence and digital solutions that connect with the region's support structures or national and European platforms. In many cases, initiatives and innovation systems also need to be linked to neighbouring regions or global structures, in order to create sufficient critical mass, capacity or global competitiveness.

Views on innovation have affected opportunities and support structures

Traditionally, the concept of innovation has been characterised by research-driven innovation, or innovations in business, which in turn has influenced the design of support systems and the innovation culture in operations. It has also contributed to the fact that boards of directors and those in positions of power often have an overrepresentation of particular groups and do not therefore reflect society at large, which creates norms and attitudes about what innovation is, who innovators are, and what challenges and potentials it is important to invest in.¹⁰ To a certain extent, the non-profit/voluntary sector, social entrepreneurs and social innovations currently lack support structures, and often find it more difficult to find their way around the existing support systems.¹¹ In order to meet societal challenges, innovations need to be developed on the basis of both their potential for scalability and economic growth and their potential for disseminable ideas, which contributes to increased social sustainability and better and more accessible welfare, or increases the attractiveness of society at large and contributes to the region becoming attractive as a place in which to live and work. Innovations are needed to resolve challenges and conflicting goals, which may arise in the form of, for example, land use and biodiversity in the transition to a greener economy, or social sustainability linked to, for example, migration or unequal life opportunities.

National studies and the dialogues conducted during the development process have identified challenges in the public sector linked to innovation capacity. This can concern a lack of resources, but also legislation and processes, and not least the absence of a culture and habit of working with innovation. Innovation in the

¹⁰ See, for example, Swedish Agency for Economic and Regional Growth – Öppna upp

¹¹ VINNOVA (2018) *Social Innovation i Sverige*

public sector is based on complex values and specific challenges. This can involve meeting demand and the needs of citizens by means of values such as democracy, efficiency and service, objectivity and the rule of law. At the same time, the public sector can play an important role in driving or encouraging innovation in society by co-financing or participating in innovation efforts, providing open data, or in broad system innovations. The public sector can also increase the demand for innovation, and support companies in the development of products and services by setting requirements, as well as contributing to increased efficiency and innovation capacity within their own operations. The promotion of innovation in their procurement processes by demanding or permitting new solutions is one example.

Areas of strength

Västerbotten has many areas of strength, within business, academia and society. Some have arisen from Västerbotten's natural resources, in the form of forests, minerals, water or natural environments, whilst others originate from the county's universities, university hospitals or cultural resources. A number of environments for testing and demonstration can currently be found at the intersections between the areas of strength. With Västerbotten's characteristic areas of strength, geography, demographics and climate as a foundation, there is great potential to further develop more test and demonstration environments. The county has another strong resource in the good living conditions that exist in the region, including in the form of the

strong trust and tolerance, the diversity of living environments, and the strong civil society that exist throughout the region. Taken together, these different resources form a strong base for innovations, which makes Västerbotten more attractive, more innovative and more sustainable.

An area of strength is defined as a thematic area or industry in which Västerbotten has several companies, clusters or knowledge environments. These areas are unique or relatively strong in a global or Swedish perspective, which means that they provide some kind of comparative advantage. There is also drive and potential for innovation within these areas. These areas are important for strengthening the region's innovation capacity, and they also form the basis for identifying areas for smart specialisation. Annex 1 describes the areas of strength in more detail.

The areas of strength are developed through initiatives to strengthen innovation capacity but also through other types of initiatives, such as common advocacy work for good basic conditions in national and European processes concerning legislation or priorities. This can involve initiatives concerning business development, logistical or infrastructure issues, or the provision of skills. The areas of strength are areas of knowledge and industries in which innovation efforts have great specific potential to contribute to the goal of being an innovation engine for sustainable development. They can play a part in the creation of strong innovation processes in cross-sectoral collaborations between the areas of strength, or in broad and innovative collaborations with different types of actors, or national and international collaborations.



AREAS OF STRENGTH BASED ON NATURAL RESOURCES

Forest bioeconomy
Mining & minerals
Sustainable energy systems
Manufacturing industry

- Important assets in a global transition, great economic significance
- Large global market for innovations from Västerbotten
- Deep expertise and breadth throughout the chain from raw material to research



AREAS OF STRENGTH BASED ON NATURAL RESOURCES, CULTURAL & KNOWLEDGE RESOURCES

Hospitality
Food
Cultural & creative sector

- Important assets for creativity, innovation and attractiveness are found throughout the region
 - Many unique assets, innovation environments and competences
 - Great potential for increased exports strengthens the innovative power of other industries



AREAS OF STRENGTH BASED ON KNOWLEDGE RESOURCES

Life science
Digitalisation

- Key assets for cutting-edge innovations and knowledge-intensive innovations
- Globally competitive environments and support structures
- Great potential for growth and societal benefits

Goals and initiatives for Västerbotten

This chapter outlines the goals and development initiatives that will contribute to the creation of an innovative and smart region. The goals and initiatives have been formulated on the basis of analyses and global trends that affect the region, focusing on the goals of the regional development strategy and with insights into the region's challenges and opportunities, and its actors, within the framework of the dialogues that were conducted during the process. These interventions and projects often need to combine several initiatives within both goals.

An innovation engine for sustainable development

” Västerbotten shall mobilise and create resources for innovation development that drive environmental, climate, social and economic sustainability in Västerbotten, thereby strengthening the region's position as an innovation engine in a global perspective.

This involves the identification and implementation of initiatives that have a major impact, or that have great potential to contribute to a green transition, better health and well-being, and increased social and long-term economic sustainability. The efforts shall be linked to the challenges identified in this strategy, relate to an area of strength, or be part of the development of an area of smart specialisation.

Initiatives are needed in order to:

- Pool resources concerning cross-sectoral collaboration projects linked to societal challenges that require innovative system solutions, as well as the establishment of collaboration platforms that connect the regional innovation systems with other regions in Sweden and globally in order to create capacity for globally strong innovation ecosystems.
- Create innovation platforms, test spaces and policy labs or other methods in order to identify or test experimental ideas and models that clearly challenge and re-evaluate regular operations, legal systems or business models.
- Establish or further develop meeting places that contribute to more cross-sectoral collaboration, new networks or collaboration concerning development initiatives. This could involve bringing together companies, promoters and knowledge environments for the benefit of knowledge exchange and the identification of challenges and needs.
- Develop and strengthen social sustainability in processes for transformation and renewal, and implement targeted initiatives for industries and education with major significance for the shaping and development of innovative solutions.
- Improve society's capacity and ability to embrace new innovative technologies. This could involve companies, the public sector and the non-profit/voluntary sector increasing their knowledge, testing or implementation of new technology in their own operations or in collaboration with others.
- Establish or further develop knowledge environments within academia, business and society that ensure deep knowledge regarding important technologies, challenges or areas of strength, as well as models and methods for skills development linked to transformation and renewal in the corporate, public and non-profit/voluntary sectors.



An ecosystem with strong and inclusive innovation processes

” Västerbotten shall mobilise and create resources for inclusive innovation processes that drive more innovations and strengthen the innovation capacity throughout the region.

This involves the identification and implementation of initiatives that lead to companies, the non-profit/voluntary sector, the public sector and academia developing and implementing models, methods or working methods that contribute to renewal and transformation.

Initiatives are needed in order to:

- Create or further develop structures and methods for innovation collaboration between the private, non-profit/voluntary and public sectors. This could, for example, involve collaboration between actors within the innovation ecosystem or with actors in other regions, social innovations, collaborations with academia, between larger companies and smaller knowledge-intensive companies, or addressing and working with complex societal challenges in a regional context.
- Develop processes for smart specialisation, based on the region's areas of strength.
- Create virtual and physical innovation support structures where these are limited or missing, for example outside the towns, linked to social innovation or in areas of strength.
- Empower more innovators to realise their ideas by creating a support system with equal and equitable opportunities to receive innovation support and funding.
- Further develop the county's incubators for increased global competitiveness, and establish incubators or accelerators that are linked to the strategy's areas of strength.
- Ensure good access to capital, and in particular venture capital, that can support innovation and more experimental approaches, and the development and strengthening of opportunities for loan capital.
- Establish collaborations and connections with meeting places and platforms outside the region (nationally and globally) that contribute to increasing the ability to identify, analyse and act on external trends and events, and develop new markets and cross-boundary collaborations.
- Develop systems to meet rapidly changing needs for skills, and needs that arise due to technology shifts or major establishments. The initiatives shall primarily concern the development of methods and models to create highly specialised skills, talent attraction, or efforts to contribute to transformation in areas where systems for education or skills development need to test experimental methods.

Collaboration and learning in innovation

The implementation of the regional innovation strategy takes place through the work of a number of actors within a variety of areas and themes. The work of the county's actors to ensure the implementation of the strategy and their active participation in the further development of the work is of crucial importance to the effectiveness of the strategy. By building up or further developing meeting places, platforms and structures, increased coordination will take place between initiatives and projects that are conducted within the framework of the strategy – for example, by means of better coordination between local innovation systems and with other regions or national initiatives. This will contribute to the regional work being more efficient and concerted, and provide the conditions for greater success and interaction in applications for national and European programmes.

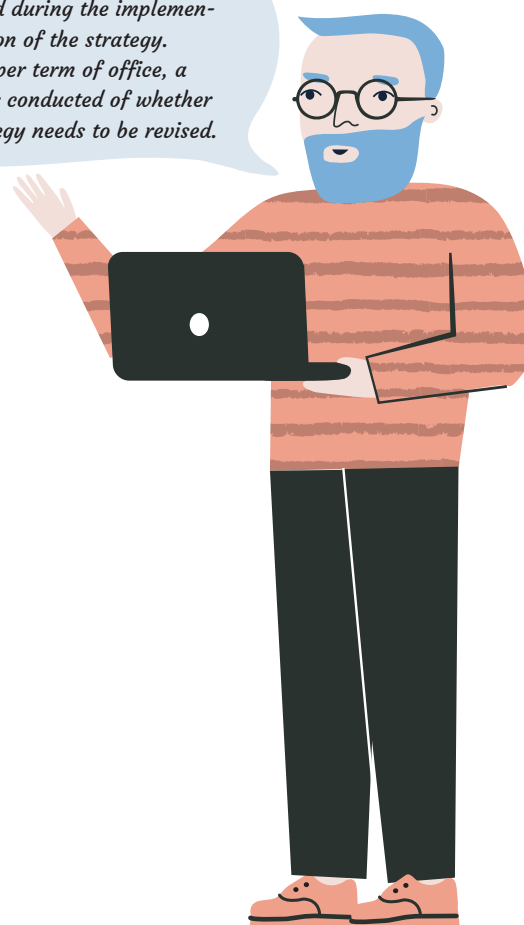
Region Västerbotten takes responsibility for driving the implementation of the strategy by means of regional innovation leadership that takes place through the steering of co-financing and the prioritisation of financial resources from the EU and

national programmes, advocacy and stakeholder monitoring work, as well as by promoting collaboration, cooperation and coordination within the regional innovation ecosystem. An important element of this is the continual measurement, following-up and evaluation of innovation efforts made within the county, and the ensuring of learning and renewal, both specifically for the innovation area and as part of the learning efforts and evaluations covered by the regional development strategy.

Region Västerbotten continually analyses the strategy's effects and results by measuring key indicators that are important for our own region, but shall also analyse the region's performance in global, European and national measurements.

Once during every term of office, the relevance of the strategy is reviewed and, if necessary, updates or adjustments are made. The strategy is linked to the regional development strategy, and therefore needs to be revised in conjunction with any new development strategy.

The development is continually monitored and evaluated during the implementation of the strategy. Once per term of office, a review is conducted of whether the strategy needs to be revised.



Annexes

Annex 1

Västerbotten's areas of strength

The hospitality industry is present throughout the region, and is particularly important for employment in sparsely populated areas. International tourism is expected to increase, which means that the demand for tourism products will also increase and be characterised by visitors who place higher demands on the environment, who want a high level of quality, and who are prepared to pay for a unique and sustainable experience. The development of a sustainable hospitality industry will require a capacity for renewal, and will be a significant source of innovation, not least regarding the development of new business models and digitalisation. Within the county, there is a wide range of both urban tourism and natural environments that are unique in a global perspective. Developments within the hospitality industry are placing increasing demands on systematic and strategic work in municipalities and regions, and Västerbotten needs to develop and make available sustainable hospitality, while also safeguarding the unique natural and cultural values.

Digitalisation is currently one of the strongest factors for change, and is a necessary facilitator and foundation for sustainability, competitiveness, employment, prosperity and the ways in which we live our lives. Since the first supercomputers became established in Västerbotten during the 1980s, that which today is referred to as the 'digital sector' or the 'tech sector' has quickly grown to become a regional area of strength. One decisive factor for this development is the strong research and educational environments that the higher education institutions in Västerbotten have established over the years in a number of digital areas. Another enabling factor is the investments in IT infrastructure, which have meant that Västerbotten today has world-class broadband. The business sector features a wide range of companies working with software development, gaming, infrastructure and service-based solutions. These include several successful specialisations in digital services and development in other industries, such as manufacturing, banking and finance, media and process manufacturing. In the public sector, digitalisation is an important factor for the development and streamlining of welfare while also ensuring that it meets the needs of residents. Within the municipalities and the public sector, there is broad knowledge and good opportunities for the testing and implementation of smart solutions in areas such as communication, transport and energy, for both towns and the wider community.

The continuous growth in this area has great potential to continue, as digitalisation is a prerequisite for the green transition. Västerbotten is well-equipped to take the next step and continue to be a leader in the digital structural transformation. Access to data combined with data-driven innovations and the use of artificial intelligence (AI) are examples of areas that are now evolving and that will be important for continued growth, competitiveness and prosperity.

The region is currently a driving force in the transition to **sustainable energy systems**. The availability of electric power in the form of primarily hydropower (but also wind power) means that companies and operations with high energy needs can establish themselves in Västerbotten as part of the global

transition to fossil-free energy. The major establishments and investments in batteries and hydrogen have great potential to further develop electrification with energy storage technologies, which in the long run will create a cross-boundary energy storage cluster. At the county's universities, there is also R&D in a number of key areas, such as alternative fuels and energy, which are important for the bioeconomy throughout northern Sweden. There is great potential to combine strengths and create innovations that are linked to the ambitions to develop sustainable societies with sustainable solutions for transport, logistics and mobility, and the drive for sustainability that exists in the county's large manufacturing companies, environmental technology companies and power companies.

The mining and mineral industry has been of great importance for Västerbotten's development, and there is everything to suggest that there will be an increasing demand for volumes of metals in the future – primarily to enable the transition towards meeting the EU's climate goals. There is increasing demand for metals and minerals that have been extracted in as environmentally sustainable a way as possible. It is of key importance that the production process strives to ensure environmental and social sustainability, and that land use issues are treated with respect for all parties involved in each project. In a global perspective, it is the companies that work both directly and indirectly in the industry that are at the forefront, in terms of skills, production processes and products. Mining and minerals constitute one of Västerbotten's areas of strength, and there are good prospects for the further development of innovations to facilitate a green transition and circular value chains. Metals and minerals are a key component in the work towards a green transition, as they are in demand for many areas, such as infrastructure, electronics, communication equipment and sustainable energy production systems, where solar cells, wind power, battery production and electronics all require access to new raw materials. There is therefore a great need and great potential to renew and further develop circular flows and technologies in order to meet the EU's climate goals.

There is great potential to strengthen the innovation capacity in **food production** in the region. One characteristic of Västerbotten's agriculture is a specialisation in milk and dairy products, and the region has several strong brands as well as examples of research-related products and innovative companies. Something that is unique to Västerbotten's food production is the large proportion of products that come from forestry and the land, such as reindeer, game, berries and fish, with great potential for increased processing and innovation. One example is reindeer husbandry, which is a niche food industry with sustainable farming methods, and that also plays an important role in the Sámi culture and contributes to Västerbotten's distinctive character in a global perspective. There are several knowledge environments at the universities with links to life science, as well as design or forestry and agricultural research. At the same time, there is generally less investment in innovation in the food sector in Sweden, compared to many other countries and in other industries. The regional food strategy identifies

key measures to further develop innovation capacity in the food sector, with particular focus on research on food production in Arctic environments, increased digital maturity and AI, and collaboration spaces for innovation that pool resources and bring knowledge, companies and actors together.

Västerbotten has a diversified **manufacturing industry** that is present in all parts of the region. There are competitive companies linked to (for example) the forestry industry, environmental technology, medical equipment, process manufacturing and the mining industry, but, in comparison with many other regions, industry in Västerbotten is not as strongly characterised by subcontracting networks to a few dominant actors. Instead, the region's industry is characterised by a variety of more niche companies that are often focused on a global market, and are not infrequently world leaders in their specific niche. This means that there is potential to connect to global value chains and be a driving force in renewal. Västerbotten has an automotive industry with a focus on heavy vehicles in the forestry and mining industries, which also has great potential in the electrification of the automotive industry, with innovation environments to utilise and capitalise on the global interest in becoming established in the region. The foundations are already in place with battery manufacturing and recycling, in combination with strengths such as clean energy, access to land, a cold climate, and an already strong manufacturing industry, strong research and a sector for software development, as well as a design college with educational offerings that have, on multiple occasions, been ranked as the best in the world. The transition to sustainability and digitalisation characterises the development of industry, not least in terms of developing more circular flows, increased digitalisation, and striving for equality and gender equality in industry.

Västerbotten has a number of assets that make **the cultural and creative sector (CCS)** a strong area. There are major investments in culture in the region, and there is a wide range of different types of art forms, companies and institutions, where the Sámi culture represents a unique resource. The region has a strong infrastructure for CCS, with public cultural institutions, professional cultural creators, a free cultural life and the non-profit/voluntary sector. There are also strong links between culture, education and research in the region. Skellefteå offers educational programmes for computer game development, and Umeå University has several programmes and support structures related to the cultural sector, not least linked to the Arts Campus. Also included in the region's strengths are design and the designed living environment, the gaming industry and gamification, with several strong companies and many start-ups.

The region's cultural and creative sector includes entrepreneurs and companies that have cultural creation or creative processes as their business model or raw material, or that build on the creation of others, for example through distribution and trade, or through the development of digital services with cultural content. Entrepreneurs and companies within the creative sector are subject to natural innovation and creative capacity, especially when it comes to iterating new business models, growth

strategies and forms of cooperation. CCS can therefore act as a catalyst for other sectors and industries to develop and revitalise towns and communities, or as part of the development of welfare. CCS is a heterogeneous industry cluster that is characterised by major differences between both the industries themselves and the companies that operate within them. In some parts of CCS, growth takes place through cooperation and collaboration, rather than through growth within each individual company, where the power is generated through strong networks that drive industries, growth and societal development forwards.

Life science is a strong area of knowledge in Västerbotten, with several globally competitive companies and a well-developed support system for commercialising ideas and research results and helping new companies to grow. The region hosts qualified research in medical cell and molecular biology, and well-developed biotechnology and medical technology with information and communication technology as support. The region's biobanks and multigenerational data include unique population-based biobank data with very long follow-up times.

By means of collaboration between universities, business and civil society, innovation power is stimulated where needs are translated into idea development and enterprise in the health, medical and social care sector and in the areas of medical technology and public health. Rapid technological development and digitalisation, research successes in precision medicine and advanced therapies, the region's sparsely populated structure, and many strong knowledge environments within the region, municipalities and universities, are some of the factors that drive the development of the sustainable healthcare of the future. A regional structure for clinical research and clinical trials has been built up, and, in healthcare, purposeful work is being performed with innovation development and partnerships with academia and industry.

Västerbotten has a large supply of forest, which has also been the basis for innovation and development in the **forest bioeconomy**. Västerbotten has a long history of forestry and associated expertise in industrial development and research, as well as in wood building construction and production. For centuries, access to forests has been the basis for innovation and the development of products, services and production in the area. Forests and wood have great potential as a resource for renewal and transformation, not least for the green transition. This is an area in which Västerbotten has the opportunity to further develop sustainable forestry, and create cross-links between forestry and wood-related industries, digitalisation, research, technology- and innovation-driven industrial production, and new wood-based products for a green transition (biofuels/biochar/clothing, etc.). Västerbotten also has world-leading forest research via the Swedish University of Agricultural Sciences, which also operates the successful research institution Umeå Plant Science Centre together with Umeå University. This area of strength is both broad and often highly specialised, which provides a good foundation for the continued development of new innovations.

Annex 2

Västerbotten's innovation support system 2022

In Västerbotten, there are several actors who help to turn ideas into reality. The diagram on the next page shows the physical offices of these actors, which does not necessarily reflect the geographical coverage of their services (for example, in the form of digital advice). Below is an overview of the different phases of company development that the support actors can focus on. In many cases, support actors have offerings for several phases. There are several actors in the region who help in the realisation of ideas, which is shown in the diagram.. There are also innovation activities in the public and non-profit sectors that do not primarily focus on company formation but on the benefits for public activities and society. The diagram focuses on those actors who primarily work with innovation development for the private sector. The innovation system in the county is not static but changes, which means that new actors, initiatives and investments can be added or removed.

The **idea phase** is characterised by meeting places, a certain amount of seed funding for early verification, and space to work in a phase during which there might not yet be a clear direction and companies have not yet been set up.

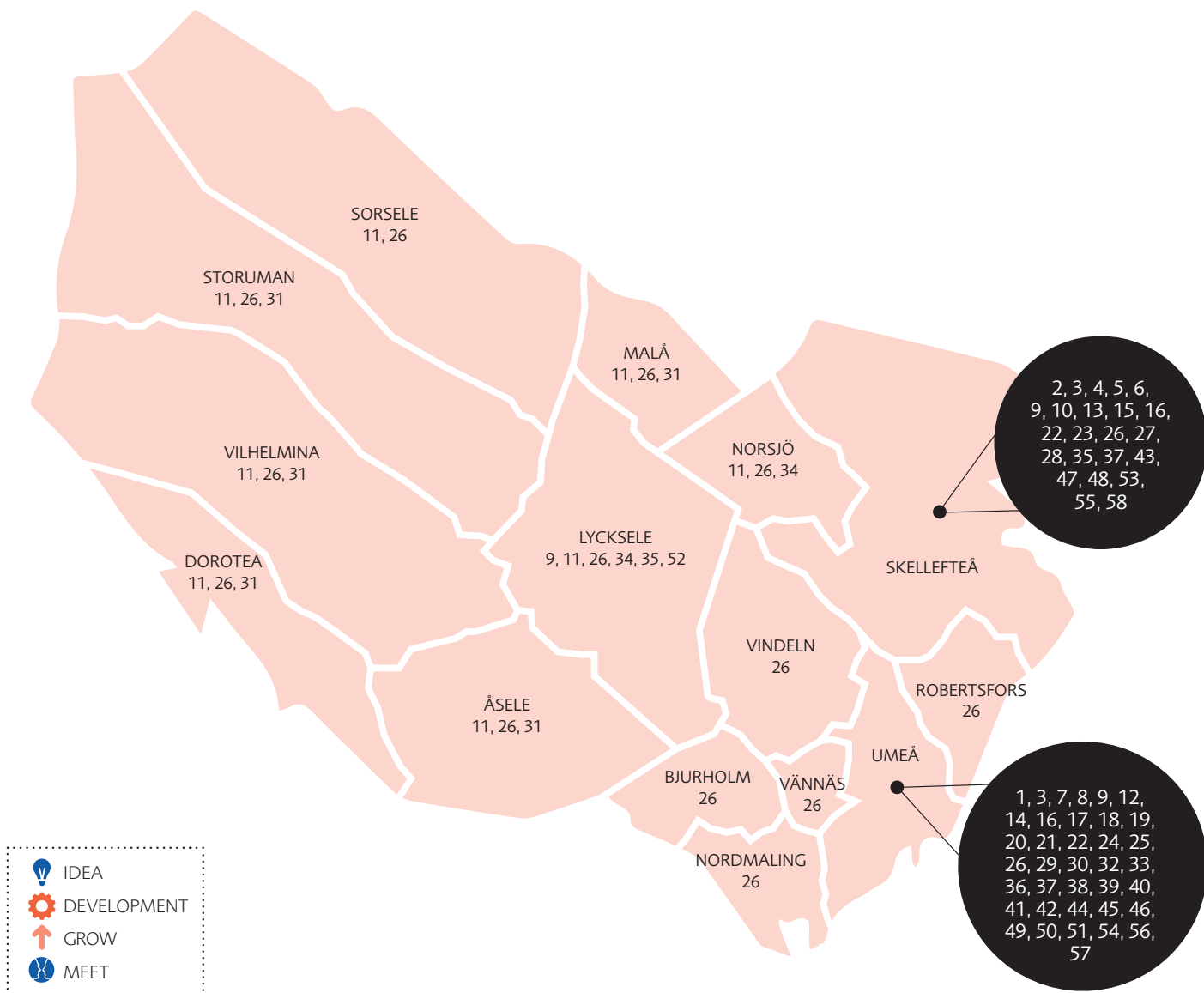
In the **development phase**, the product or service is developed, and here the idea becomes 'incubator-ready', regardless of whether it is on its way into an incubator or not. The term 'incubator-ready' means that a company is being built, a team is ready for the task of leading the company to the next step, and there is a desire to find out which business model is best suited for

the product or service. In an incubator, the company can wait and prepare itself, for either a short or a long time, depending on the industry. Life science companies will often remain in this phase for a few years, whilst a company in the gaming industry may prefer a faster accelerator path and be here for just one or two years. The main task of incubators and accelerators is to move the company in a certain direction so that the company not only survives but also creates benefit. The difference between an incubator and an accelerator lies in what stage the company is in during this phase, and the speed required by the company to reach the market so as not to miss market timing.

The third stage, which is usually called the **growth stage**, involves not only finding money from banks and venture capital, but also finding capital that comes with the right network for the company – so-called 'smart capital'. The classic way of creating companies, where there is a need to grow quickly with a lot of money, is no longer the path that all companies choose in order to succeed in reaching out. The act of growing has become more nuanced, and there is a significant difference regarding which aspect of the company is to grow. In this stage, we define those actors that enable the growth that is needed to create as much benefit as possible throughout the world, regardless of how the company wants to grow. How we make innovations 'disseminable' from Västerbotten is the focus of the work in this phase, regardless of whether the growth is to take place 'widthwise' or 'heightwise'.

FINANCING, FINANCING & ADVICE, ADVICE, INCUBATORS/ACCELERATORS AND MEETING PLACES

Because the ecosystem is alive, change also occurs regarding where and with what an actor can work. For example, it is not obvious exactly what a meeting place can contribute, but without these, the opportunity is lost for the larger meetings that are occasionally necessary in order to bring all the actors together. Digitalisation also plays a role, such that the offices marked on the map do not signal that the offering is only available for that municipality.



FINANCING

EU Funds	⚙️
Financing authorities (Vinnova etc.)	⚙️
Strategic financing	⚙️
Banks and private actors	⚙️
Partnerinvest Norr	⚙️↑
Exportkreditnämnden	↑
Kreditgarantiföreningen	⚙️↑
Norrlandsfonden	↑
Partnerinvest	↑

FINANCING & ADVICE

Region Västerbotten	💡⚙️↑
Bjurholm Municipality	💡⚙️↑
Dorotea Municipality	💡⚙️↑
Lycksele Municipality	💡⚙️↑
Malå Municipality	💡⚙️↑
Nordmaling Municipality	💡⚙️↑
Norsjö Municipality	💡⚙️↑
Robertsfors Municipality	💡⚙️↑
Skellefteå Municipality	💡⚙️↑
Sorsele Municipality	💡⚙️↑
Storuman Municipality	💡⚙️↑
Umeå Municipality	💡⚙️↑

Vilhelmina Municipality	💡⚙️↑
Vindeln Municipality	💡⚙️↑
Vännäs Municipality	💡⚙️↑
Åsele Municipality	💡⚙️↑
1. Umeå kommunföretag	💡⚙️↑
2. Skellefteå Stadshus AB	💡⚙️↑
3. ALMI	💡⚙️↑
4. Arctic Business Incubator	💡⚙️
5. Arctic Ventures	↑
6. LTU Business	⚙️↑
7. Umu Holding	⚙️↑
8. SLU Holding	⚙️↑
9. Nyföretagarcentrum	💡⚙️
10. Skellefteå Ventures	↑

ADVICE

11. Region 10	⚙️↑
12. Umeå region	⚙️↑
13. Skellefteå region	⚙️↑
14. Swedish University of Agricultural Sciences	💡⚙️
15. Luleå University of Technology	💡⚙️
16. Umeå University	💡⚙️

17. Innovationskontoret UmU	💡⚙️
18. Umeå Biotech Incubator	💡⚙️↑
19. Delta Impact North	💡
20. eXpression	💡⚙️
21. Uminova Innovation	💡⚙️↑
22. RISE Research Institutes of Sweden	💡⚙️↑
23. Skellefteå Science City	💡⚙️
24. Umeå Science Park	💡⚙️
25. Coompanion	💡⚙️
26. Entrepreneurs	⚙️↑
27. Arctic Game Lab	⚙️
28. Adopticum	💡⚙️
29. Energikontor Norr	💡
30. Skogstekniska klustret	⚙️↑
31. Inlandets teknikpark	💡⚙️
32. Drivhuset	💡
33. Biofuel Region	⚙️
34. Gold of Lapland	⚙️
35. IUC Norr	↑
36. Connect Norr	⚙️↑
37. Västerbotten Chamber of Commerce	↑
38. Business Sweden	↑

39. Kvarkenrådet	⚙️↑
40. Nordic Innovation Houses	↑
41. North Sweden European office	💡

INCUBATORS/ACCELERATORS

42. BIC Factory	💡⚙️↑
43. Arctic Business Incubator	💡⚙️↑
44. Umeå Biotech Incubator	💡⚙️↑
45. eXpression	💡⚙️↑
46. Uminova Innovation	💡⚙️↑
47. GoBusiness	💡⚙️↑
48. UnBoxx	💡⚙️↑

MEETING PLACES

49. Great Hub	💡
50. House Be	💡
51. A Working Lab Universum	💡
52. Innovationsarena inland	💡
53. The Great Northern	💡
54. Mötesplats Social Innovation	💡
55. Idélabbet/T2/Idéforum	💡
56. Arts Campus	💡
57. Väven	💡
58. Sara kulturhus	💡

