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# Regional Innovation Monitor

**Regional Innovation Report (Northern Central Sweden)**

**To the European Commission**

**Enterprise and Industry Directorate-General**

**Directorate D – Industrial Innovation and Mobility Industries**

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## **PREFACE**

The Regional Innovation Monitor (RIM)<sup>1</sup> is an initiative of the European Commission's Directorate General for Enterprise and Industry, which has the objective to describe and analyse innovation policy trends across EU regions. RIM analysis is based on methodologies developed in the context of the INNO-Policy Trendchart, which covers innovation policies at national level as part of the PRO INNO Europe initiative.

The overarching objective of this project is to enhance the competitiveness of European regions through increasing the effectiveness of their innovation policies and strategies. The specific objective of the RIM is to enhance the scope and quality of policy assessment by providing policy-makers, other innovation stakeholders with the analytical framework and tools for evaluating the strengths and weaknesses of regional policies and regional innovation systems.

RIM covers EU-20 Member States: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Romania, Slovakia, Spain, Sweden and the United Kingdom.

This means that RIM will not concentrate on Member States where the Nomenclature of territorial units for statistics NUTS 1 and 2 levels are identical with the entire country (Estonia, Latvia, and Lithuania), Malta which only has NUTS 3 regions, Slovenia which has a national innovation policy or Cyprus and Luxembourg which are countries without NUTS regions.

The main aim of 50 regional reports is to provide a description and analysis of contemporary developments of regional innovation policy, taking into account the specific context of the region as well as general trends. All regional innovation reports are produced in a standardised way using a common methodological and conceptual framework, in order to allow for horizontal analysis, with a view to preparing the Annual EU Regional Innovation Monitor reports.

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<sup>1</sup> <http://www.rim-europa.eu>

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# Executive Summary

## 1. Introduction: Main recent trends in the Regional Innovation System

The NUTS 2 region Northern Central Sweden (Norra Mellansverige) is a construction developed mainly for the design and implementation of the European Regional Development Funds (ERDF) 2007-2013. It is a sparsely populated region, with approximately 826,000 inhabitants, consisting of three independent NUTS 3 regions (län). The GRP per capita in 2008 was slightly above the EU27 average, but the growth rate has been low for many years. The region is well endowed with national resources and has traditionally been dominated by capital-intensive export industries, such as pulp and paper, steel and engineering, machinery and transport vehicles. However, global structural changes have resulted in outsourcing, reduced employment and international mergers and acquisitions. Since these sectors are sensitive to global demand, the impact of the recent economic crises was relatively high in the counties depending on traditional exports industries. To increase regional resilience, attention to services sectors has increased, but employment in the regional services sector is still below the national average.

Employment in high tech industries and knowledge intensive services is rather low and even if the share of the population with a higher education is slowly increasing, it is still below the national and EU27 average. In Northern Central Sweden, there is one university, Karlstad University (Värmland), and two university colleges, in Dalarna and Gävleborg, but the share of government R&D funding is limited. The annual business R&D expenditure is also below the EU average, since many of the larger companies are part of multinational groups. Still, the region is doing rather well in terms of number of patents, which may be a consequence of the interest in applied research among some of the larger technology-based firms in the region.

## 2. Major innovation challenges and policy responses

### Challenge 1: Broaden the innovation capacity

To reduce the present dependency on a few capital-intensive export industries, a great challenge of the region is to stimulate innovation that leads to new jobs and business development. During the last decade, a cluster policy framework has been implemented, to support the development of prioritised clusters in the region.

However, to avoid path dependence and lock-in effects, it is necessary to support not only the dominating industry sectors, but to stimulate cross sector collaboration and development of new sectors, contributing to a broader industry base for innovation with a potential for smart specialisation. This development has been supported by the ERDF co-funded SLIM project (System Management for Innovative Platforms and Cluster Organisations).

## **Challenge 2: Increase employment in the services sector**

Over the last years, the level of employment in the region has been lower than the average in EU27. Global competition has resulted in rationalization and increased productivity, reducing the possibilities for employment. It has therefore become increasingly important to support the development of entrepreneurship and growth in the more human resource intensive sectors, such as the services sector. Still, the level of employment in high tech and knowledge intensive services sectors in the region is lower than the national average. There is also a need to increase employment in other services sectors, e.g. tourism, creative sectors and health care.

To overcome these challenges, several policy measures have been applied in order to stimulate entrepreneurship and innovation in the services sector, including university research, establishment of new cluster organisations and incubators, and projects directed to specific sectors.

## **Challenge 3: Broaden the access to competence**

A third challenge is to improve access to relevant competences in the labour market. In the ICT sectors, for example, companies in the region are experiencing problems to recruit personnel. Due to the demographic development, with a limited population growth and an aging population, this problem may increase in the future. This raises the question on how to increase the level of higher education in the regions, particularly among young male.

Since this is a question of changing attitudes and increasing the interest in higher education, various activities have taken place to reach out to young persons, e.g. providing experiments for kids, develop attractive programs at various levels and to invite business representatives to participate in research and education. Many of these activities are implemented by the regional cluster organisations to secure future competence in the labour market.

## **3. Innovation policy governance**

As indicated above, Northern Central Sweden is not a functional or traditional region. Still, during the last few years, collaboration between the relatively independent regional development councils in Dalarna, Gävleborg and Värmland has increased. This is mainly as a result of ERDF, e.g. the joint partnership for prioritisation between projects and the collaboration on cluster development in the SLIM project. However, the level of collaboration at NUTS 2 level is still at a moderate level and there is need to further increase this collaboration if the region is to develop into a functional region. Further, there is an ongoing discussion in Sweden on future regions and the role of Northern Central Sweden as an administrative region in the long run is still unclear.

At the NUTS 3 level, Värmland has during the last decade used cluster policies as an integrated part of regional development, e.g. for prioritisation of regional investments in testbeds and research areas. During this process, a strong collaboration between actors and a relatively clear division of responsibilities has developed. Today, Karlstad University and the cluster organisations are active part in the regional development process. In Gävleborg, a similar process was initiated during the development of the innovations strategy, presented in 2011, and in Dalarna an Advisory Board for cluster development has recently been established. This indicates that there is a good opportunity for benchmarking, collaboration and continued development of the regional governance systems.

Cluster and innovation systems are still the main instruments for stimulating regional economic growth, but the region has recognized the need for cross-sector as well as cross border collaboration. This could be interpreted as an attempt use smart specialization to foster related variety or diversification, in order to support knowledge re-combinations, stimulate innovation and entrepreneurship and avoid lock-in effects due to long term path dependency in the regional innovation systems. Increased collaboration with actors at various levels may reduce fragmentation and competition between small, new cluster initiatives and also create a potential to influence the design and implementation of national innovation support programmes. In this process, the activities of SLIM may have an important role.

#### **4. Conclusions: future actions and opportunities for innovation policy**

A dominating instrument for regional innovation in Northern Central Sweden has been the support of clusters and innovation systems. This has been a way of assuring critical mass in terms of funding and competence development in sectors of regional importance. To broaden the innovation base and create opportunities for increased entrepreneurship, several initiatives have been taken to support not only traditional industry sectors, but also new services based sectors.

Even if the concept of smart specialization has not been formally implemented in regional innovation policy in Northern Central Sweden, the need for combining regional specialization with collaboration between sectors and across county, region and national borders has been identified as important for future competitiveness.

In summary, the analysis identifies the following opportunities for possible future actions.

- First, support the development of related diversity and smart specialization, building on the potential for innovation and entrepreneurship in the intersection between clusters and competence areas.
- Second, increase global knowledge flows and the regional influence on national policy design and implementation, by continuing the collaboration between regional, national and international actors initiated through the SLIM project.
- Third, continue the on-going process of supporting the development of services-based sectors, to broaden the bases for regional innovation and entrepreneurship.

## 1. Main Trends and Challenges in the Regional Innovation System

### 1.1 Recent trends in regional economic performance

The NUTS 2 region Northern Central Sweden (Norra Mellansverige) has approximately 826,000 inhabitants (2010), representing about 8.8% of the Swedish population. The region consists of 41 municipalities (kommuner) in three independent NUTS 3 regions (län) of relatively equal size; Värmland, Dalarna and Gävleborg. It does not correspond to a functional or traditional region, but is a construction developed mainly for implementation of the European Regional Development Funds (ERDF) in Sweden 2007-2013.

Northern Central Sweden is a relative scarcely populated region, 13 persons per km<sup>2</sup>, well below the EU27 and the Swedish average. However, there are important variations in population distribution and development. Between 2005 and 2010 there was a population decline in most rural areas, while the larger municipalities expanded. About 54% of all inhabitants are concentrated to 14 municipalities with a population density above the national average. The largest municipalities are Gävle, Karlstad and Falun, ranging between 94,000 and 56,000 inhabitants<sup>2</sup>.

The GRP per capita in the region in 2008 was €26,500, slightly above the EU27 average, but the 2.77% growth in GRP per capita between 2005 and 2008 was lower than the EU27 average<sup>3</sup>. This has been a long-term trend. Between 1996 and 2003, the average annual change in GRP was 2.6%, providing Northern Central Sweden with rank 237 among 246 NUTS 2 regions in EU25.<sup>4</sup>

The region is well endowed with national resources. Particularly Värmland and Gävleborg have traditionally been dominated by capital-intensive sectors, such as pulp and paper, steel and engineering, machinery and transport vehicles. These sectors account for a large share of Swedish exports. The percentage of gross value added (GVA) generated by manufacturing industry, agriculture, forestry and energy sector is above the national average. However, since the 1990s, there has been an on-going structural change in the traditional business sectors. Global competition has created a pressure for increased productivity, resulting in outsourcing, reduced employment and international mergers and acquisitions. Today, there are several large multinational companies located in the region, for example SSAB (steel), Stora Enso (pulp and paper), Metso Paper (pulp and paper) and ABB (high voltage transmission), but employment in the traditional industries has declined.

The structural change in traditional sectors has resulted in an increased attention of other sectors, such as food processing, ICT and tourism. Over the last ten years, employment in the ICT sector has increased rapidly and the region has a strong position with a well-developed ICT infrastructure. In the municipality of Hudiksvall, for example, 96% of the inhabitant has access to broadband, compared to an average coverage of 13% in Europe<sup>5</sup>. There is an increasing concentration of ICT companies; often providing support services to traditional sectors, e.g. small consultancy firms around the pulp and paper sector in Karlstad, but also several national agencies in Gävle. Still, the average share of employment in high tech industries and knowledge intensive services is well below the national average.

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<sup>2</sup> Lindqvist, M. ed. (2010), Regional Development in the Nordic Countries 2010, Nordregio report 2010:2

<sup>3</sup> Appendix D, source: Eurostatt

<sup>4</sup> Tillväxtverket (2007), Regionalt Strukturfondsprogram för regional konkurrenskraft och sysselsättning i Norra Mellansverige 2007-2013 (Operational Program, ERDF), source: Eurostatt

<sup>5</sup> Tillväxtverket (2007), Regionalt Strukturfondsprogram för regional konkurrenskraft och sysselsättning i Norra Mellansverige 2007-2013.



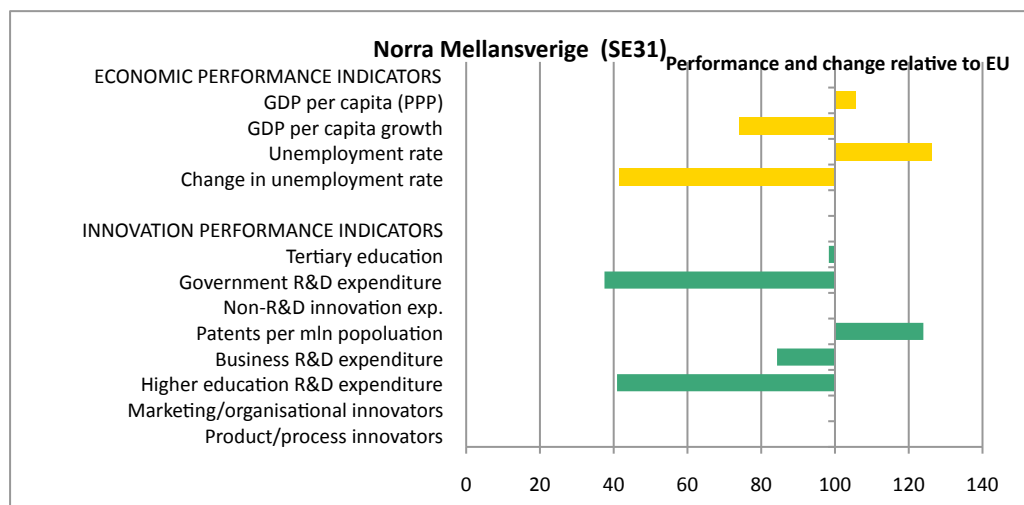
The tourism sector in Northern Central Sweden has developed well over the last years, with attractive tourism areas in for example Dalarna. Still, even if there are many companies in the tourism sector, the companies are small and employment in the regional services sector is still below the national average.

The impact of the recent economic crises varies between the three counties, due to their different industry structure. At NUTS 3 level, the unemployment rates in 2009 were higher than the EU27 average in Gävleborg and Värmland (10.1 and 9.5%, respectively), which could be explained by a high dependence on traditional exports industries. Dalarna, with a more fragmented industry structure and many small tourism companies, was less affected and the unemployment level (8.5%) was slightly below the EU27 average<sup>6</sup>.

### 1.2 Recent trends in regional innovation performance

In a study of national innovation performance, an index was constructed based on 12 indicators in four different categories; creativity and tolerance; level of technology, research and development; entrepreneurship and business; and regional specialization. In all categories, the counties of Northern Central Sweden had a lower than average result. Only one indicator reached the national level in all three counties, i.e. survival of newly started firms, but the counties scored relatively high also on regional specialization. This may be explained by a large share of employment in the dominating regional clusters, e.g. pulp and paper, ICT, steel and engineering. However, the level of technology, research and development was considered low<sup>7</sup>. A similar picture emerges in comparison also within the EU27. (See figure 1.1)

Figure 1-1 Economic and innovation performance indicators



Source: Eurostat and Community Innovation Survey.

As indicated above, employment in high tech industries and knowledge intensive services is rather low. Over the last decade, many companies, in for example the ICT and pulp and paper sector, have had problems to find relevant competence in the regional labour market. Even if the share of the population with a higher education is slowly increasing, it is still below the national and EU27 average.

<sup>6</sup> Lindqvist, M. ed. (2010), Regional Development in the Nordic Countries 2010, Nordregio Report 2010:2

<sup>7</sup> Tillväxtverket (2007), Regionalt Strukturprogram för regional konkurrenskraft och sysselsättning i Norra Mellansverige 2007-2013. Source: Länsstyrelsen i Sörmlands län,

The government research and development (R&D) expenditures are mainly directed towards universities and research institutes. In Northern Central Sweden, there is one university, Karlstad University (Värmland), and two university colleges, in Dalarna and Gävleborg. However, the amount of government R&D funding to smaller higher education institutions is limited. Even if the number of researchers and the level of R&D funding have increased over the last years, only about 1.7% of government R&D funding to universities was allocated to Karlstad University in the Swedish state budget 2011<sup>8</sup>. As a consequence, the level of higher education R&D is lower than the EU27 average.

Also private R&D expenditures are relatively limited in the region. The annual business R&D expenditure in 2007 was 1.02%, well below the national average but also below the EU average<sup>9</sup>. One explanation is that many of the larger companies are part of multinational groups, with external headquarters and R&D facilities. This reduces the level of R&D investments and makes the region vulnerable to external decisions concerning innovation and investments.

With approximately 2.75% of all Swedish R&D employees working in Northern Central Sweden in 2007 (427 persons) this is considerably less than the region's share of inhabitants (8.8%). More than 50% of the R&D employees are living in Värmland, which may be an effect of the location of Karlstad University. Still, the region appears to be doing well in terms of number of patents. This may be a consequence of the regional presence of R&D departments of some of the larger firms, such as Stora Enso (Karlstad, Värmland) and ABB (Ludvika, Dalarna) and their interest in applied research.

### 1.3 Identified challenges

#### **Challenge 1: Broaden the innovation capacity**

Stimulating innovation that leads to new jobs and business is one of the greatest challenges for the three counties in Northern Central Sweden. As indicated above, the region is still highly depending on a relatively limited number of export intensive industries. This is reflected in the negative impact of the latest economic crises, particularly on the counties of Värmland and Dalarna.

Since the 1990's global competition in the traditional industry sectors has increased. To support the development of the region's strong industries and to make the region attractive for international companies and investments in research and innovation, a cluster policy framework has been implemented. However, it is important to secure that the regions is not overly depending upon a limited number of existing industries, in order to avoid path dependence and lock-in effects hindering innovation and industrial restructuring processes. It is therefore important to support the development of related and new sectors, contributing to a broader industry base for innovation.

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<sup>8</sup> Swedish Government (2010), Förslag till stadsbudget för 2011, Prop. 2010/11:1 Utgiftsområde 16

<sup>9</sup> Appendix D

### **Challenge 2: Increase employment in the services sector**

Over the last years, the level of employment in the region has been lower than the average in EU27. One explanation is the regional dependence upon traditional industry sectors. Global competition has resulted in rationalization and increased productivity, reducing the possibilities for employment. Even if the innovation capacity in traditional sector increases, the impact on employment may be limited. It is therefore important to support the development of entrepreneurship and growth in the more human resource intensive sectors, such as the services sector.

Today, the level of employment in high tech and knowledge intensive services sectors in the region is lower than the national average. There is also a need to increase employment in other services sectors, e.g. tourism, creative sectors and health care. In Dalarna, for example, there are many small tourism companies, but the impact on employment is limited since few of them are growing. The Swedish reform concerning choice of care takers has opened a market for entrepreneurship and innovation in the health care sector. However, there is limited competence in the Swedish advisory and financial support systems on the specific needs of these companies. There is also a limited competence in the public system on how to apply public procurement as a driver of innovation and entrepreneurship.

### **Challenge 3: Broaden the access to competence**

A third challenge is to improve access to relevant competences in the labour market. In the ICT sectors, for example, companies in the region are experiencing problems to recruit personnel. Due to the demographic development, with a limited population growth and an aging population, this problem may increase in the future. This raises the question on how to increase the level of higher education in the regions, particularly among young male.

## 2. Innovation Policy Governance

### 2.1 Degree of institutional autonomy

In Sweden, the national level of government has the main responsibility for funding of research and higher education, while responsibility for basic civil services (e.g. basic education, care for the disabled and aged and child care) is administrated at the local, municipal level (kommun). During the last decade, responsibility for regional development has to an increasing extent been decentralised to the NUTS 3 regions (län), i.e. counties. Traditionally responsibility was shared between County Administrative Boards (länsstyrelsen), representing the national government at a regional level, and Regional County Councils (landsting). Over time, other types of directly or indirectly elected organisations for regional development have developed. Since 2007, Regional Development Councils responsible for regional development have been developed in 14 NUTS 3 regions, including Värmland, Dalarna and Gävleborg.

In 2007, the national strategy for competitiveness, entrepreneurship and employment 2007-2013 was presented by the Swedish government as a guideline for the Regional Development Programmes (RUP) and the regional structural funds programmes (ERDF and ESF). One ambition was to coordinate various policy areas and increase cooperation between the local, regional and national level. For designing and implementing the European Structural Funds 2007-2013, eight Swedish NUTS 2 regions were formalised. Today, all NUTS 3 regions are required to develop a RUP on a regular basis and all NUTS 2 regions have developed Operational Programmes for the ERDF. These programmes have been developed in regional partnerships with actors from different sectors, e.g. business, public sector, universities and non-profit organisations.

During recent years, innovation has become more important as focus of Swedish regional policy has shifted from regional redistribution, to regional development and now to regional growth. However, there has not been a national innovation strategy. During 2009, national agencies and business organisations initiated the process *Innovation for Growth*, to mobilise national and regional actors and provide input to a future national innovation strategy<sup>10</sup>. In 2010, Sweden adopted a national services innovation strategy<sup>11</sup> and in 2011 the government initiated a broad process to develop a national innovation strategy<sup>12</sup>.

National initiatives have been taken to encourage regional actors at the county level to develop regional innovation strategies<sup>13</sup> and to create competitive platforms for competence development. Further, higher educational institutions have been encouraged to increase their collaboration with the surrounding society and to develop regional innovation offices. As a result, responsibility for innovation is to a large extent decentralised to the regional level.

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<sup>10</sup> [www.iva.se/en/Projects/Innovation-for-Growth/Project-description/](http://www.iva.se/en/Projects/Innovation-for-Growth/Project-description/)

<sup>11</sup> Ministry of Enterprise, Energy and Environment (2010), En strategi för ökad tjänsteinnovation. Promemoria 2010-07-08

<sup>12</sup> [www.regeringen.se/sb/d/14440](http://www.regeringen.se/sb/d/14440)

<sup>13</sup> Swedish Government, (2009), Ett lyft för forskning och innovation, proposition 2008/09:50.

In Northern Central Sweden, the level of regional autonomy concerning regional innovation policies is considered to be rather high. The main responsibility for regional development, including the development and implementation of RUP, is held by the three Regional Development Councils; Region Värmland, Region Dalarna and Region Gävleborg. However, as Northern Central Sweden is not a traditional or functional region, there is no single body responsible for regional innovation policy and the integration of the formal governance structures of the three NUTS 3 regions of Värmland, Dalarna and Gävleborg is rather limited. Still, joint operational programmes for the European Structural Funds (ERDF and ESF) have been developed for Northern Central Sweden and the Swedish Agency for Economic and Regional Growth (Tillväxtverket) has established a regional office for implementation of the ERDF-programme in Gävle. Besides, a partnership of regional stakeholders from all three NUTS 3 regions has been established to prioritise between projects.

The Operational Programme for ERDF in Northern Central Sweden has a total EU-funding of €175m. In 2011, almost €50m had been devoted to innovation environments, focusing on innovation and collaboration between research actors and small and medium sized companies. A large share of the matching funding is provided by regional stakeholders, as the share of national funding for education and research allocated to the region is rather limited.

## 2.2 Institutional-set up, co-ordination and implementation mechanisms

Since 2007, the main responsibility for regional development in Northern Central Sweden, including the development and implementation of Regional Development Programmes (RUP), is held by the Regional Development Councils at NUTS 3 level; i.e. Region Dalarna, Region Värmland and Region Gävleborg. In each county, there are also a County Administrative Board, the government body responsible for overseeing national goals, as outlined by the Swedish parliament and government, and a County Council, a politically elected regional organisation responsible mainly for health care, transport and infrastructure. Often, all three actors are collaborating on development issues within the county.

The development of an Operational Programmes for ERDF 2007-2013 in Northern Central Sweden was headed by the County Administrative Board of Gävleborg, in an open process including public actors as well as business representatives and different organisations from the three counties. In accordance with national guidelines, a joint partnership was established for both structural funds programmes (ERDF and ESF) to prepare decisions and prioritise between different projects. The partnership is made up by 12 persons, representing municipalities, county councils, county administrative boards, labour market organisations, employment agency and non-profit organisations. Before this, Dalarna and Gävleborg county had some collaboration, e.g. in the steel and engineering sector, but Värmland had a more developed collaboration with the counties of Uppsala and West Sweden. The ERDF programmes have contributed to an increased collaboration between the counties.

The innovation support structure in each county consists of a variety of organisations and measures, including cluster organisations, regional financial and advisory services on business development, business incubators and higher education institutions. Since it gained university status in 1999, Karlstad University has become an increasingly important resource for innovation and collaboration, particularly in Värmland. Today, the university is in close cooperation with the regional business community in several of its research areas, often through the regional cluster organisations. Karlstad University is also one of four partners in the Four Leaf Clover (Fyrklöver), one of eight nationally initiated innovation offices. In the region, there are also the two university colleges of Dalarna and Gävle, but their focus has been more on general education and competence development, e.g. through distance education, and their involvement in regional innovation and cluster development has been more limited. Several initiatives have also been taken to initiate systems innovation and services innovation, e.g. through the establishment of business incubator such as INOVA and InnoWent.

The level of collaboration on innovation between the different actors varies between the three NUTS 3 regions. In Värmland, regional commitment to innovation has evolved over the last decade and there is a well-developed collaboration between Region Värmland, the County Administrative Board, Karlstad University and regionally prioritised cluster organisations. The role and responsibility of different actors has been mapped. In 2011, processes were initiated to develop research collaboration between clusters and Karlstad University, competence platforms and a new cluster strategy, i.e. parts of the RUP that could later make up the basis for formulating a regional innovation strategy. In Gävleborg, a collaborative process was initiated to identify relevant actors for innovation and business development and develop a regional innovation strategy, presented in May 2011<sup>14</sup>. This will be an important component in the on-going process of developing a new RUP for Gävleborg. In Dalarna, no innovation strategy has been developed, but focus has been on increased coordination between innovation and business support actors, e.g. by developing a regional Advisory Board for cluster development.

Over the last decade, the regional innovation system in Northern Central Sweden has developed around several cluster organisations, collaborations with regional higher education institutions and innovation platforms. The cluster organisations are based on cooperation between different actors. Innovation platforms are set up around new business challenges, demanding interaction between different branches and competences. There are several well established cluster initiatives and innovation platforms related to traditional and up-coming business sectors. Today, there are 15 prioritised cluster organisations, representing about 700 companies and 60 000 employees. Many of these cluster organisations have a key role in regional development and implementation of various policy actions for supporting regional innovation and they have been strongly supported in the implementation of the ERDF programme.

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<sup>14</sup> Region Gävleborg (2011), En innovationsstrategi för Gävleborg, 2011-05-04

Table 2-1 Prioritised cluster organisations in Northern Central Sweden 2010

| County and cluster organisations                  | Sector                                  | Cluster companies | Cluster employment | Contacts   |
|---|---|-------------------|--------------------|--|
| <b>Värmland</b>                                   |   |                   |                    |  |
| <b>The Packaging Arena (TPA)</b>                  | Consumer driven packaging               | 45                | 8 000              | <a href="http://www.packagingarena.com">www.packagingarena.com</a>       |
| <b>The Paper Province (TPP)</b>                   | Pulp and paper                          | 90                | 8 600              | <a href="http://www.paperprovince.com">www.paperprovince.com</a>         |
| <b>Steel and engineering</b>                      | Steel and manufacturing                 | 55                | 14 000             | <a href="http://www.stalverkstad.se">www.stalverkstad.se</a>             |
| <b>Compare</b>                                    | ICT                                     | 95                | 2 300              | <a href="http://www.compare.se">www.compare.se</a>                       |
| <b>Dalarna</b>                                    |   |                   |                    |  |
| <b>Destination Dalarna</b>                        | Tourism                                 | 5 + 1 000         |                    | <a href="http://www.destinationdalarna.se">www.destinationdalarna.se</a> |
| <b>Triple Steelix</b>                             | Steel and manufacturing                 | 720               | 22 000             | <a href="http://www.triplesteelix.se">www.triplesteelix.se</a>           |
| <b>DalaBIT</b>                                    | Timber and construction                 | 70                | n/a                | <a href="http://www.dalabit.se">www.dalabit.se</a>                       |
| <b>ITS Dalarna</b>                                | Intelligent transportation and services | 39                | n/a                | <a href="http://www.itsdalarna.se">www.itsdalarna.se</a>                 |
| <b>High Voltage Valley (HVV)</b>                  | Electrical power transmission           |                   |                    | <a href="http://www.highvoltagevalley.se">www.highvoltagevalley.se</a>   |
| <b>Boom Town</b>                                  | Creative industry                       |                   |                    | <a href="http://www.boomtowntown.nu">www.boomtowntown.nu</a>             |
| <b>Gävleborg</b>                                  |   |                   |                    |  |
| <b>Fiber Optic Valley (FOV)</b>                   | ICT/Fiber optics                        | 50                | 3 200              | <a href="http://www.fiberopticsvalley.com">www.fiberopticsvalley.com</a> |
| <b>Future Position X (FPX)</b>                    | ICT/ Geographic Information Systems     | 180               | 26 000             | <a href="http://www.fpx.se">www.fpx.se</a>                               |
| <b>FindIT – Forum for Industrial IT solutions</b> | Industrial ICT                          | 160               | 20 000             | <a href="http://www.findit.sandbakpark.se">www.findit.sandbakpark.se</a> |
| <b>Radio Center Gävle</b>                         | RF measurement technology               | 20                |                    | <a href="http://www.hig.se/radiocenter">www.hig.se/radiocenter</a>       |
| <b>Interactive TV Arena</b>                       | Interactive TV services                 |                   |                    | <a href="http://www.itvarena.com">www.itvarena.com</a>                   |

Source: SLIM (2010), Made in Sweden. Cluster cooperation in Northern Central Sweden. Assessment 2010

In the 1990's, the *pulp and paper sector* went through a phase of stagnation. At the same time, regional companies had problems to recruit the right competence. As the pulp and paper sector represented a considerable share of the regional export and GRP, a dialogue was initiated between public actors and seven companies. The Paper Province (TPP) was established in 1999, initially as a cooperative project within the municipality of Karlstad but later as an economic association. In 2004, the Packaging Greenhouse (TPG) was established as a private company, owned to 100% by TPP. TPG is an independent test laboratory for testing, developing and verification of new paper and engineering products and services. The laboratory is also frequently used for



educational purposes<sup>15</sup>. In 2010, had about 90 members, including for example paper mills, engineering companies and consultants. Many companies were part of global conglomerates. The share of small and medium sized companies had increased from one fifth to a third of the members. Between 2003 and 2009, the turnover of TPP increased from about SEK 2.5 millions to 8.5 millions, with funding from ERDF being increasingly important. In 2007, TPP was one of the 16 “Top European Clusters in High Innovation regions” according to the European Cluster Observatory, and in 2010, they were appointed “A European world class cluster” as one of the 100 best clusters of the world. TPP has supported the spin-off of the Packaging Arena (TPA) a cluster organization developing consumer packaging and the establishment of Energy Square, a project for increased energy efficiency in process industries. Since 1999, the region has developed into one of the world leading concentrations of competence in pulp and paper with 200 companies and over 12 000 employees.

With a long tradition of mining the *steel and engineering sector* has always been important in the industry region of Bergslagen. To support the development of advanced steel products, an initiative for development of a cluster organisation was taken by Jernkontoret, the Swedish Steel Producers’ Association. Today, Triple Steelix consist of large steel producing companies and manufacturers of mechanical equipment for metal forming and industrial IT, as well as about 200 small and medium sized companies, working with steel, engineering and services. It is supported by 13 municipalities in the counties of Dalarna, Gävleborg and Västmanland. Other actors involved are the University College of Dalarna, MIKRAB (research institute), IUC Dalarna (industrial development centre), Falun/Borlänge regionen, Stiftelsen Teknikdalen (Science Park) and regional authorities. Triple Steelix was awarded €6m for a ten year period 2004-2014 from the national VINNOVA call on regional innovation systems. An additional €10m in basic funding for the period, excluding separate project funding, has been granted from EU and Region Dalarna.

There are also some more recent cluster organisations, including FindIT, Steel and Engineering and High Voltage Valley (HVV). Find-IT in Gävleborg, with focus on implementation of IT-solutions in steel manufacturing processes, has developed around the large steel company Sandviken. Steel & Engineering in Värmland focus on entrepreneurship, business development, industry-related R&D, as well as training and competence provision. Steel & Engineering is also partly financed by ERDF. HVV in Dalarna is a development project within Samarkand<sup>15</sup>, a local development agency, owned by the municipalities of Ludvika and Smedjebacken, the County Council of Dalarna and two of the largest companies in the region; the engineering company ABB and the steel company OVAKO. ABB, one of the worlds’s leading engineering companies, and Ludvika is an international centre for power transmission technology, including research, development and manufacturing of products and systems. With almost 2,500 engineers, Ludvika has the highest concentration of engineers in Sweden. Since the start in 2005, the initiative has changed focus from research and development of leading edge technology to the development of a broader cluster organisation around power transmission technology. However, HHV is running a large strategic research project on smart grids, co-funded by the national agency VINNOVA.

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<sup>15</sup> [www.thepackaginggreenhouse.com](http://www.thepackaginggreenhouse.com)



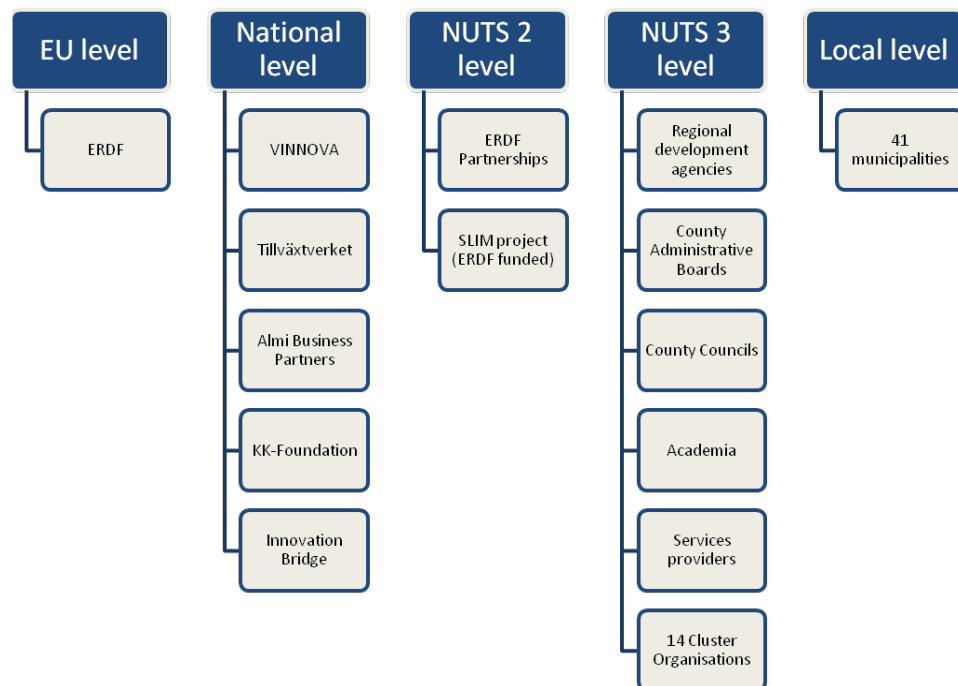
Northern Central Sweden also has considerable competence in the *ICT sector* and several cluster organisations have been developed. In Värmland, Compare Foundation Karlstad was established in 2000 as a result of an initiative undertaken by seven ICT companies in the region. The mission was to strengthen the image of the regional ICT sector, to attract competence to the region, and to create a meeting place for people. Today, the cluster has about 95 member firms, ranging from large international groups to small family businesses, with a total of 2,500 employees and a turnover of € 0.45b. A key resource for regional innovation is Compare Testlab, providing a test site for business and researchers from Karlstad University.

In Gävleborg County, two ICT clusters evolved in connection to the first call on Regional Innovation Systems (VINNVÄXT) from the Swedish Agency for Innovation Systems (VINNOVA) in the early 2000s. Fiber Optics Valley (FOV), one of the winners in the call, assists the growth of global and local companies through support in the form of research, training, financing, contacts and business development. There also provide a unique test environment for fiber optics development. Another example is Future Position X (FPX), developed in collaboration between the university collage of Gävle, companies and the municipality of Gävle to further develop regional competence on ICT applications related to Geographic Information Systems (GIS). Today, the association has approximately 40 members, including several small consultancy firms, a few medium sized GIS-companies and a number of larger customers from the private and public sector.

During the last years, a number of new initiatives have also developed in more *services based industries*. Some examples are DalaBit (wood and construction), Destination Dalarna (tourism), ITS Dalarna (transports) and BoomTown (creative industry).

An important coordination initiative within Northern Central Sweden is the project System Management for Innovative Platforms and Cluster Organisations (SLIM), co-funded by the ERDF. Through process support, evaluation and policy learning, SLIM has supported regional collaboration and increased knowledge about cluster organisations as a tool for enhanced regional development. However, the level of cooperation between the NUTS 3 regions is still at a moderate level.

Figure 2-1 Management and implementation structure of regional innovation strategy



Source: Own assessment.

### 2.3 Availability and use of policy intelligence tools

The Operation Programme for ERDF 2007-2013 in Northern Central Sweden was based on previous experience from two ERDF programme periods, 1995-1999 and 2000-2006, but also from other EU-funded programmes and the Regional Development Programmes (RUP)<sup>16</sup>. A study of the regional impact of ERDF funding on the development of clusters and innovation systems was of particular importance. The report indicated a need for increased funding of cluster and innovation projects, from approximately 10% in the previous period, and a need to focus more on commercialisation of results<sup>17</sup>. As a result, it was decided that a larger share of the Operational Programme on Northern Central Sweden 2007-2013 should be directed towards clusters, innovation, technology development, R&D and commercialisation of research results, products and services<sup>18</sup>.

Evaluation of previous periods of European Structural Funds programmes indicated a limited impact on regional development in Sweden<sup>19</sup>. For the period of European Structural Funds 2007-2013, the European Commission indicated a need for a more flexible, demand driven approach to evaluation during the programme period; ongoing evaluation<sup>20</sup>. The aim was to improve the potential for a more functional learning process. In Sweden, ongoing evaluation (följeforskning) became mandatory for all larger projects. Courses and guidelines on ongoing evaluation were developed by the Swedish Agency for Economic and Regional Growth (Nutek/ Tillväxtverket) and the Swedish ESF Council<sup>21</sup>. In Northern Central Sweden, several on-going evaluation projects have been initiated. Some of them have been concluded and used as input for decisions on public funding or new applications to the ERDF.

Even if there is analysis competence at the regional level, there has been a demand for additional support and benchmarking with other regions. To identify joint analysis needs and provide regional stakeholders with relevant material, Tillväxtverket, VINNOVA and regional public actors initiated a project to develop a joint analysis arena, Reglab. Inspiration was provided by the former national programme for innovation systems and clusters (Visanu)<sup>22</sup> and the Danish Reglab-initiative. Representatives from Northern Central Sweden had an active role in the development of the arena, both in the development phase and as representative of the Board. Since 2011, all Swedish counties participate in the initiative, which is considered to have provided valuable input and contacts, e.g. the formation of a national cluster forum.

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<sup>16</sup> Including the preceding Regional Growth Agreements (RTA) and Regional Growth Programmes (RTP)

<sup>17</sup> Eurofutures (2005?), Regionala förutsättningar för innovation, thematic evaluation for the Monitoring Committee of Objectives 1 and 2

<sup>18</sup> Tillväxtverket (2007), Regionalt Strukturffondsprogram för regional konkurrenskraft och sysselsättning i Norra Mellansverige 2007-2013.

<sup>19</sup> ITPS (2004) Effektutvärdering av de geografiska målprogrammen inom EG:s strukturffonder, A 2004:009

<sup>20</sup> Indicative Guidelines on Evaluation Methods: Evaluation During the Programming Period. Working Document No. 5, April 2007

<sup>21</sup> Nutek, (2008) Nyttä med fölieforskning. En vägledning för utvärdering av strukturffonderna 2007-2013, R 2008:16.

<sup>22</sup> The program was run in collaboration between VINNOVA, the former Nutek (Tillväxtverket) and Invest in Sweden Agency in 2003-2005. See Visanu (2005), Collaboration for Growth – a joint initiative between ISA, Nutek and VINNOVA, Tillväxtverket Info 102-2005

Another important activity has been the SLIM-project, which has had an active role in knowledge development and dissemination on cluster development during the last years, by preparing reports, information material and arranging seminars and conferences. The SLIM management has also taken part in national and international activities, resulting in an increased interest in the regional cluster development also at a Swedish national level. For example, by providing study visits to the region for representatives of the Swedish ministries, being involved in a national process for developing input on regional innovation systems to a national project led by the Royal Institute of Engineering (IVA) in collaboration with VINNOVA and Tillväxtverket, and participating in an ongoing dialogue with the national cluster and innovation programmes run by Tillväxtverket and VINOVA. Finally, SLIM has had an important role by undertaking various evaluation activities. The yearly cluster survey, originating from Värmland, has been implementing in all three counties, providing valuable information on cluster performance.

## 2.4 Key challenges and opportunities

As indicated above, Northern Central Sweden is not a functional or traditional region. During the last few years, collaboration between the relatively independent regional development councils in Dalarna, Gävleborg and Värmland has increased, mainly as a result of the increased collaboration on the ERDF. However, the level of collaboration is still at a moderate level and there is need for increased collaboration if the region is to develop into a functional region. There is also an ongoing discussion in Sweden on future regions and the role of Northern Central Sweden as an administrative region in the long run is still unclear.

At the county level, experience in cluster development and regional collaboration on innovation varies. Värmland has during the last decade used cluster policies as an integrated part of regional development, e.g. during the prioritisation of regional investments in testbeds and research areas. During this process, a strong collaboration between actors and a relatively clear division of responsibilities has developed. In Gävleborg, a similar process was initiated during the development of the innovations strategy, presented in 2011, and in Dalarna an Advisory Board for cluster development has been initiated. This indicates that there is a good opportunity for benchmarking and continued development of the regional governance systems at the county level.

Overall, there is a need for continued development of the collaboration between the counties, as well as with actors at the national and international level. By increased collaboration, it may be possible to avoid fragmentation and competition between cluster initiatives of limited size in the national innovation systems. It may also increase the possibilities to influence the design and implementation of national innovation support programmes. In this process, the activities of SLIM have an important role.

### 3. Innovation Policy Instruments and Orientations

#### 3.1 The regional innovation policy mix

Since Northern Central Sweden is not a traditional or functional region, there is no specific innovation strategy or policy for coordination of support to research, technological development and innovation (RTDI) at the NUTS 2 level. However, there has been an increased focus on cluster policy development to support innovation and entrepreneurship over the last ten years. At the county level, there are on-going processes to map the innovation system, develop methods for increased collaboration between different actors or even develop regional innovation strategies.

Besides, the Operational Programme of the ERDF in Northern Central Sweden has had an important role in innovation policy development, since innovation and entrepreneurship were highly prioritized questions during the development of the programme.

*“Investment in innovative environments and entrepreneurship are priorities in the programme. The programme funds research, development and innovation and supports the creation of innovative environments and clusters. The focus lies on technological and business development through collaboration between universities / colleges / research institutes and small and medium-sized business.”<sup>23</sup>*

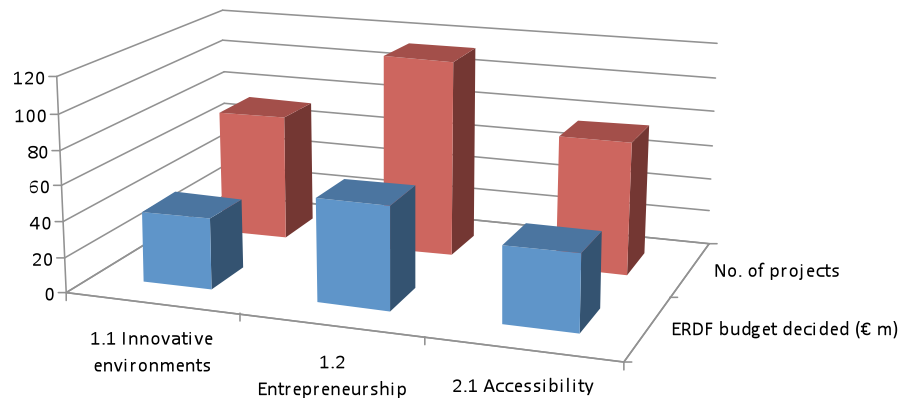
The total budget of the ERDF in Northern Central Sweden for the period 2007-2013 amounts to some €175m, i.e. the second largest ERDF-programme in Sweden. Since a matching funding is required, most funding available from public actors at regional and national level has been invested in ERDF co-funded projects. Based on experience from previous programme periods, the programme was broadly formulated, with three action areas. The purpose of priority 1 (business development) was to stimulate and strengthen innovative environments (Measure 1.1) and to support entrepreneurship (Measure 1.2) in the region. The overall goals were to increase employment by 6,000 new jobs and to create 3,000 new companies, by stimulating a growing services sector, increasing collaboration between business and higher education, creating knowledge based growth, e.g. by stimulating clusters and innovation systems, increasing internationalisation of small and medium-sized companies and supporting an increased use of renewable energy. The second priority (2) was to improve accessibility (Measure 2.1).

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<sup>23</sup> Tillväxtverket (2010), Develop Sweden, The European Structural Funds in Sweden 2007-2010.

According to a report from the on-going evaluation of the programme, a total of 263 projects had been approved for funding in December 2010. Most of the projects were relatively small. Only 42 projects had an ERFD-funding above €1m. Still, a large share of funding was directed to strategic projects supporting the development of an innovative environment through cluster organizations, higher education institutions or R&D institutes, e.g. to support cluster development, testbeds and R&D-collaboration. In December 2010, a total of €40m of ERDF-funding had been allocated to 73 projects with the ambition to support the development of innovative environments<sup>24</sup>.

Figure 3-1 ERDF Northern Central Sweden, December 2010



Source: Tillväxtverket/PwC (2011)

In the beginning of 2011, a last round of decision for supporting innovative environments was taken, resulting in approximately 90 projects and a total budget of €49.5m for this Measure.

As indicated in Table 3-2, the focus of support measures in Northern Central Sweden relates to the development of governance and regional policies, support of research and technology and the creation and growth of innovative companies. There are also some measures concerning human resources and market and innovation culture, but these are often integrated in measures for supporting cluster development.

<sup>24</sup> Tillväxtverket (2011), Följeforskning i programområde Norra Mellansverige, Slutrapport, Rapport 0101

Table 3-1 Overview of the regional innovation policy mix

|                                    | <b>Governance &amp; horizontal research and innovation policies</b> | <b>Research and Technologies</b>   | <b>Human Resources</b>   | <b>Creation and growth of innovative enterprises</b>   | <b>Markets and innovation culture</b>                           |
|------------------------------------|---|--|--|--|---|
| <b>Regional policy development</b> | 1.1.3 Policy Advisory Services<br>1.3.1. Cluster Framework Policy   |  |  |  |   |
| <b>Innovative environments</b>     | 1.1.3 Policy Advisory Services<br>1.3.1 Cluster Framework Policy    | 2.1.1. Excellence, relevance and management of research at universities<br>2.1.2 Public Research org.<br>2.1.4. Research Infrastructures<br>2.2.2. Knowledge Transfer<br>2.2.3 R&D cooperation | 3.1.1 Awareness creation and science education<br>3.2.2 Career development | 4.1.1. Support to sectoral innovation in manufacturing<br>4.1.2. Support to innovation in services<br>4.2.1 Support to innovation management and advisory services<br>4.2.3 Technology transfer between firms<br>4.3.1. Innovative start-ups<br>4.3.2. Support to risk capital | 5.1.1. Support to the creation of favourable innovation climate |
| <b>Entrepreneurship</b>            | 1.3.1 Cluster Framework Policy                                      |  |  | 4.1.1. Support to sectoral innovation in manufacturing<br>4.1.2. Support to innovation in services<br>4.2.1 Support to innovation management and advisory services<br>4.3.1. Innovative start-ups<br>4.3.2. Support to risk capital  |   |

Source: Own assessment.

The Structural Funds programmes 2007-2013 have contributed to an increased potential for *regional governance and horizontal research and innovation policy* in Northern Central Sweden. Before the programme was launched, innovation collaboration between the counties of Dalarna, Gävleborg and Värmland was limited to specific projects or sectors. The process of developing and implementing the programme resulted in an increased collaboration between the three counties, as prioritizations are made in a joint regional partnership. Since measures directed towards the development of cluster and innovation systems were prioritized, the SLIM-project – co-funded by the ERDF – has been an important policy initiative to support continued collaboration and knowledge transfer between clusters and counties.

During the last decade, a large share of public funding has been directed towards *research and technology development* in dominating industry sectors, such as pulp and paper, steel and engineering and ICT. Due to increased global competition, many of these technology based sectors have established cluster organizations to secure competence development and regional attractiveness. In many cases, support has included the development of joint research projects, shared research facilities or test laboratories. For example, as part of the ICT cluster Fiber Optics Valley in Gävleborg, Acreo, a non-profit research institutes within the field of electronics, optics and communication, received about €4.5m in ERDF-funding and a matching funding mainly from Swedish universities and Region Gävleborg, to support the development of a Fiber Optic Centre and a national testbed. Today, the Center is part of the national initiative Institute Excellence Center, supported by the Swedish Agency for Innovation Systems, the Swedish Knowledge Foundation and the Foundation for Strategic research. Another example is the establishment of a neutral testing facility for company and university researchers, developed in collaboration between the ICT cluster Compare; Region Värmland and Karlstad University.

Figure 3-2 Example of measures supporting research and technology development; Compare Testlab



Source: [www.compare.se](http://www.compare.se)

In Gävleborg, several research projects on Geographic Information Systems/Technologies (GIS/GIT) have been initiated in collaboration between the cluster initiative Future Position X, private companies, public actor and researchers at the University College of Gävle, e.g. NYSTA and Smart City Innovation Playground (Smart CIP).



*Human resources* are key factors to the future development of competitive regions. Since responsibility and funding for basic education and training is allocated to the local level (kommun) while higher education funding is allocated by the national level, regional policy makers have limited possibilities to directly influence education and competence development in the region. Still, regional universities and university colleges have a great deal of freedom to develop educational programmes in line with the challenges or opportunities they perceive. As a result, many measures have been taken in collaboration between cluster organizations and regional policy makers to convince regional higher education institutions to adapt the supply of education to the needs of the regional labor market. One interesting measure has recently been taken in the county of Värmland, where regional policymakers have decided to support the funding of ten professorships in applied research areas of importance for the regional business community. This is a rather unique agreement in a Swedish context, as the research areas have been prioritized in a dialogue with the regional cluster initiatives. Another example is the daGIS-project, established to further develop the collaboration between the cluster organisation Future Position X, focusing on the development of various applications for geographic information systems (GIS), and the University College of Gävle. The ambition is to develop new programmes and increase the use of GIS in education and research.

Other measures have been taken to attract into the region people and organisations with particular types of skills and competence deemed to be in short supply, often as part of activities for developing the regional clusters. This was the main motive behind the development of some of the older cluster organisations, such as TPP and Compare. A more recent example is High Voltage Valley (HVV), a cluster initiative to develop an innovative environment in power emission around the multinational company ABB in the municipality of Ludvika. An important goal is to attract high-level competence as well as foreign investments. The initiative is run as a project by the local development agency Samarkand2015, and funded by ERDF and local or regional actors.

Figure 3-3 Example of measures supporting the development of human resources; High Voltage Valley



Source: [www.highvoltagevalley.org](http://www.highvoltagevalley.org)

However, competence development is not always related to higher education. Several of the cluster organizations have also supported the development of educations for life long learning. In Karlstad, for example, the municipality collaborated with TPP when Karlstad Technology Center was established in 2004.



There are many policy measures to promote and sustain the *creation and growth of innovative enterprises*. In traditional industry sectors and clusters, focus is often on development of existing companies. However, the main target groups of publicly co-funded initiatives are individuals and small or medium-sized companies (SME). For most cluster organizations, business development is an important objective and many initiatives have received financial support by regional, national or international actors. For example, Steel and Engineering supports internationalization, new businesses development and competence on organizational development. Another example is the project TPP Future Factory, run by the cluster organization TPP. The project was initiated in 2007 with the ambition to identify and develop strategic business sectors related to pulp and paper, for example on energy efficiency, environmental issues, packaging and ICT. The project contributed to the development of the project Energy Square, supporting energy efficiency in pulp and paper processes. For 2011-2013, focus is on international marketing, continued development of the strategic platforms and collaboration with Karlstad University on a joint Growth Office of Paper Province (GOP2), to support innovation processes in small and medium sized firms, including products, services, and processes as well as market innovations.

Two of the largest projects funded by the ERDF in Northern Central Sweden are risk capital funds, run by the regional offices of ALMI Företagspartner AB, a state owned organization for business advice and investments. ALMI Invest Northern Central Sweden has a total funding of €10.4m over the period 2008-2014, provided by ERDF, the ALMI Företagspartner AB, Region Dalarna and Region Gävleborg. ALMI Invest North West Sweden has a total funding of €2.6m over the same period, provided by ERDF, ALMI Företagspartner AB and Region Värmland. The organizations provide risk capital, but also advisory services and contacts. The ambition is to support a change of the regional business community, from a traditional, capital intensive industry structure to a more services and knowledge based business structure.

There are also measures directed towards services sectors or with a broader focus than the traditional cluster organizations, for example the development of incubators. One example is InnoWent, a meeting place for companies, entrepreneurs, researchers, teachers, students and public sector in Dalarna. The ambition is to stimulate development of competence, markets, products and services in four profile areas of the University College of Dalarna and country; tourism, materials, energy/environment and IT/Media. Another initiative is the open business incubator INOVA in Värmland. The vision of INOVA is to create new businesses out of Swedish R&D, also in the services sector. INOVA is a foundation sponsored by regional actor and part of the national Innovation Bridge Incubator Programme, IBIP. An interesting project is VIVAN, an initiative to increase commercialization of innovation in the health care sector in Värmland. The project is running until 2013, with financial support from the County Council of Värmland, Region Värmland, Almi Business Partners and ERDF.

Figure 3-4 Example of measures supporting creation and growth of innovative enterprises, VIVAN



Source: [www.vivan.se](http://www.vivan.se)

Over the last few years, cluster based initiatives have been taken to support the development of services sectors, e.g. tourism, the creative sector and the construction sector. BoomTown, for example, was a project to stimulate entrepreneurship in the regional music industry, run by Borlänge municipality of Borlänge between 2008-2011 and with a total budget about €2.8m provided by ERDF, Borlänge municipality and Region Dalarna. Other example is Destination Dalarna, a cluster initiative in the tourism sector.

In terms of *markets and innovation culture*, there are few explicit support measures, even if several of the cluster initiatives are arranging different events to market themselves and their regions, thereby supporting the creation of favourable innovation climate, e.g. for attracting foreign competence or investments. One example is the yearly event arranged by High Voltage Valley in Ludvika under the name of Power Innovation Day. Another example is the yearly conference Paper Makers Day, arranged by TPP in Karlstad. Together with Karlstad University and the cluster organisations of Compare and Steel & Engineering, they are also involved in the club Tekniklusten at Värmland museum to create a more innovative culture in the region. The ambition is to increase the interest in technology and mathematics among kids (5-15 years) by providing experiments and activities in a former research centre of the pulp and paper company Stora Enso. The experiments represents three themes; from forest to paper; technology mirrors and renewable energy. The project is supported by private and public actors in the region.

Figure 3-5 Example of measure to support innovation culture; Tekniklusten



Source: [www.varmlandsmuseum.se](http://www.varmlandsmuseum.se)

There have also been some attempts to introduce public procurement as a measure to support innovation. In Gävleborg County, for example, there has been some successful examples of implementation of new technology support in the public sector, e.g. for the care of elderly. However, it has been difficult to introduce new innovative solutions in regular activities. The knowledge about innovation procurement in Sweden is rather limited and there is still a need for development.

In Table 3-2, the main initiatives prioritized in Northern Central Sweden are summarized under four main headings; policy development, cluster development, strengthening research/research infrastructure and advisory/financial support. As indicated before, there are almost 90 projects related Measure 1.1. Innovative Environments and the presentation below include a selection of the more strategic projects. There are also examples of projects from Measure 1.2 Entrepreneurship and some innovative initiatives at the county level. Many projects focus on the creation of innovative environments, including the support to cluster organizations. The cluster organizations, in turn, coordinate various types of support measures to stimulate business development, innovation and entrepreneurship, ranging from social networking to joint research project and the establishment of test facilities.

Table 3-2 Selection of existing regional innovation support projects and instruments

| Title  | Duration  | Policy priorities   | Budget | Organisation responsible  | More information  |
|--|-----------|---|--------|---|---|
| <b>Policy development</b>  |           |   |        |   |   |
| SLIM I-III (System for Innovative Platforms and Cluster Organisations in North Central Sweden) | 2007-2013 | 1.1.3 Policy Advisory Services<br>1.3.1. Cluster framework policies   | €5.5m  | Region Värmland, in collaboration with Regional Cooperation Council of Dalarna, Region Gävleborg, | <a href="http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=12824&amp;r=SE31">http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=12824&amp;r=SE31</a> |
| <b>Cluster development</b>   |           |   |        |   |   |
| TPP Future Factory (phase 1-3)   | 2007-2013 | 2.2.3 R&D Cooperation<br>4.1.1. Support to sectoral innovation in manufacturing<br>4.1.2. Support to innovation in services<br>4.2.1 Support to innovation management and advisory services<br>4.2.3 Technology transfer between firms<br>4.3.1. Innovative start-ups | €3.6m  | The Paper Province (TPP)  | <a href="http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=15310&amp;r=SE31">http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=15310&amp;r=SE31</a> |
| Development of a competence center on consumer packaging I-II                                  | 2007-2011 | 2.2.3. R&D cooperation<br>2.1.4 Research Infrastructure<br>4.1.1. Support to sectoral innovation in manufacturing<br>4.2.1. Support to innovation management and advisory services  | €7.3m  | The Packaging Arena (TPA)   | <a href="http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=12839&amp;r=SE31">http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=12839&amp;r=SE31</a> |
| High Voltage Valley I-II   | 2008-2013 | 2.2.3. R&D cooperation<br>4.2.3. Support to technology transfer between firms<br>4.2.1. Support to innovation management and advisory services  | €0.8m  | Samarkand2015, in collaboration with Regional Cooperation Council of Dalarna                      | <a href="http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=12844&amp;r=SE31">http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=12844&amp;r=SE31</a> |

| Title  | Duration                                    | Policy priorities   | Budget                      | Organisation responsible    | More information  |
|--|---|---|-----------------------------|-----------------------------|---|
| Smart City Innovation Playground (Smart CIP)<br>NYSTA I-II<br>DAGIS        | 2011-2013<br><br>2008-2010<br>2010-2012     | 2.2.3 R&D Cooperation<br>4.1.2. Support to innovation in services   | €3.2m<br><br>€4.5m<br>€1.9m | Future Position X (FPX)     | <a href="http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=15311&amp;r=SE31">http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=15311&amp;r=SE31</a> |
| Compare Business Innovation Center I-III                                   | 2007-2014                                   | 2.2.3 R&D Cooperation<br>2.1.4 Research Infrastructure<br>4.1.1. Support to sectoral innovation in manufacturing<br>4.1.2. Support to innovation in services<br>4.2.1. Support to innovation management and advisory services | €6.6m                       | Compare                     |   |
| WÅXS I-II,<br>Clean Production Center I-II,<br>Industrial Innovation power | 2008-2011<br><br>2009-2014<br><br>2012-2013 | 2.2.3 R&D Cooperation<br>2.1.4 Research Infrastructure<br>4.1.1. Support to sectoral innovation in manufacturing<br>4.1.2. Support to innovation in services<br>4.2.1. Support to innovation management and advisory services | €1.8m<br><br>€1.3m<br>€1.3m | Jernkontoret/Triple Steelix |   |
| Fiber Optics Valley – development projects I-IV                            | 2007-2011                                   | 2.2.3 R&D Cooperation<br>2.1.4 Research Infrastructure<br>4.1.1. Support to sectoral innovation in manufacturing<br>4.1.2. Support to innovation in services<br>4.2.1. Support to innovation management and advisory services | €8.2m                       | Fiber Optics Valley (FOV)   |   |

| Title  | Duration  | Policy priorities   | Budget | Organisation responsible                | More information  |
|--|-----------|---|--------|---|---|
| <b>Strengthening Research/ Research Infrastructure</b> |           |   |        |   |   |
| Acreo Fiber Optic Center, I-II                         | 2007-2011 | 2.13 Research and technology Organisation<br>2.1.4 Research Infrastructure  | €5.6m  | Acreo                                   | <a href="http://projektbank.tillvaxtverket.se/projektbanken#page=a0003">http://projektbank.tillvaxtverket.se/projektbanken#page=a0003</a>                 |
| Acreo National Testbed                                 | 2007-2011 | 4.1.1. Support to sectoral innovation in manufacturing<br>4.1.2. Support to innovation in services  | €3.5m  |   |   |
| Co-funded professorships at Karlstad University        | 2010-2014 | 2.1.1. Excellence, relevance and management of research at universities   | €10m   | Region Värmland and Karlstad University | <a href="http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=15312&amp;r=SE31">http://www.rim-europa.eu/index.cfm?q=p.support&amp;n=15312&amp;r=SE31</a> |
| <b>Advisory and financial support</b>                  |           |   |        |   |   |
| Almi Invest  | 2008-2014 | 4.1.1. Support to sectoral innovation in manufacturing<br>4.1.2. Support to innovation in services<br>4.2.1 Support to innovation management and advisory services<br>4.3.1. Innovative start-ups<br>4.3.2. Support to risk capital | €10.4m | Almi Invest Northern Central Sweden     | <a href="http://www.almi.se/varmland/Riskkapital/">www.almi.se/varmland/Riskkapital/</a>  |
| Almi Invest  | 2008-2014 | Se above!   | €4.6m  | Almi Invest North West Sweden           | <a href="http://www.almi.se/dalarna/kontakt-oss/almiinvest/">www.almi.se/dalarna/kontakt-oss/almiinvest/</a>  |
| VIVAN I-II (Innovation in the health care sector)      | 2007-2010 | 4.1.2. Support to innovation in services<br>4.3.1. Innovative start-ups   | €1.3m  | Almi Företagspartner Värmland           | <a href="http://www.vivan.se">www.vivan.se</a>  |
| InnoWent   | 2007-2013 | 2.2.1 Support infrastructure  | €8m    | Högskolan i Dalarna                     | <a href="http://www.innowent.se">www.innowent.se</a>  |
| InnoWent HiD I-II                                      | 2007-2010 | 2.2.1 Support infrastructure  | €2.8m  | Teknikdalen Foundation                  | <a href="http://www.innowent.se">www.innowent.se</a>  |

Source: Own assessment.

As shown in the presentation above, there is a broad range of different regional innovation policy instruments available in the Northern Central Sweden. However, some of them have been of particular importance to support the prioritized goals of increased innovation and entrepreneurship.

- During the last decade, the development of *cluster organizations* has become an increasingly important measure to support regional development. Today, there are about 14 different cluster organizations in the region, taking an active part in regional business development. Cluster organizations represent different sectors and are involved in a broad range of activities, from providing arenas for social networking to R&D collaboration and the establishment of research facilities and test-beds.
- The *SLIM-project* (System Management for Innovative Platforms and Cluster Organisations) is an ERDF-funded project, highly prioritized by all three counties of Northern Central Sweden. The project is administered by Region Värmland, in close collaboration with Region Gävleborg and Region Dalarna. The project has had an important role in the development of cluster framework policies, by providing public intelligence tools and knowledge dissemination in the form of regular evaluations, reports and seminars. The project also provides a platform for increased coordination of innovation activities, e.g. between policymakers, cluster organizations and researchers at different levels.
- The region of Northern Central Sweden has traditionally been dominated by capital intensive manufacturing industries. However, during the last years, several initiatives have been taken to stimulate entrepreneurship and broaden the business and innovation base. Examples of sectors that have received increased attention during the last years are the tourism sector, creative industries and the health care sector. To support this development, *incubators and advisory services* for start-up and innovation, particularly in the services sector, have been established, e.g. VIVAN, InnoWent and INOVA.

### 3.2 Appraisal of regional innovation policies

As indicated before, the region is heavily dependent on traditional export sectors and the impact of the recent economic crises was hard, particularly in the counties of Värmland and Gävleborg. Even if it is difficult to assess the economic impact, the implementation during the last decade of a cluster policy framework provides an interesting opportunity to address the main challenges of the region. The main critic against cluster policies is the risk of path dependence and lock-in effects due to support of existing industry structures. However, in Northern Central Sweden the traditional cluster policy framework has been developed to support not only the dominating industry sectors, but to *broaden the industry base for innovation*. By stimulating cross sector collaboration and the development of new sectors, a potential is provided for smart specialisation by developing specific niches in the intersection between established and new sectors.

During the last decade, the level of employment in the region has been lower than the average in EU27. This may partly be explained by high global competition in the traditional sectors, resulting in rationalization and an increased focus on productivity. To increase future possibilities for *employment*, it has become increasingly important to support the development of entrepreneurship and growth in the more human resource intensive sectors, such as the services sector. As a result, various policy measures have been applied in order to stimulate entrepreneurship and innovation in the services sector, including university research, establishment of new cluster organisations and incubators, regional investment funds and an innovation office at Karlstad University. Several initiatives have a specific focus on the development of the services sector, including knowledge intensive services, creative industries, health care and tourism.

Even if collaboration between the business sector and the education system has improved radically as a result of cluster collaborations, it is still difficult to recruit the right *competence* at the regional labour market, e.g. in the ICT sector. Due to the demographic development, with a limited population growth and an aging population, this problem may increase in the future. To influence attitudes and increase the interest in higher education, various activities have taken place to reach out to young persons, e.g. providing experiments for kids, develop attractive programs at various levels and to invite business representatives to participate in research and education.

Overall, this indicate a broad range of different policy measures to support innovation and entrepreneurship in Northern Central Sweden, including support to increase business and university collaboration, to strengthening the research infrastructure, to stimulate entrepreneurship and innovation, and to develop human resources. Many of those are implemented through the 15 regional cluster organizations, ranging from traditional industries to new sectors and services industries, and in collaboration with public actors and higher education institutions.

Two illustrating examples of cluster organisations evolving into regional development actors are TPP and Compare, the first two cluster organisations established in the county of Värmland in the late 1990s. Both TPP and Compare were initiatives of regional companies, in order to support collaboration between the business sector and the municipality. Over time, collaboration with Region Värmland and Karlstad University has increased, resulting in several joint initiatives, e.g. new programmes to attract students, cross-sector R&D-projects and the establishment of regional test facilities for researchers and business representatives. TPP has also resulted in the spin-off of projects in the intersection between pulp and paper and other sectors, e.g. on consumer packaging (TPA) and energy efficiency (Energy Square).

According to a recent evaluation of six Swedish clusters, cluster participation has positive effects on business growth, employment and competitiveness. One example was Compare, where cluster companies had grown by 213% more than other ICT companies between 2001 and 2008<sup>25</sup>. There is also the development of a world leading concentration of competence in the pulp and paper in sector around TPP in Värmland. The focus on cluster development has been supported by national programmes, as well as by funding from the ERDF. However, it is difficult to assess the economic impact of cluster organisations and it is still too early to assess the potential success of the more recent initiatives directed to the services based sectors.

Over the last five years, the collaboration on innovation between the counties of Dalarna, Gävleborg and Värmland has increased, as a result of the joint Operational Programmes for the European structural funds (ERDF and ESF) in Northern Central Sweden. There has also been an increased collaboration across different clusters. Cross cluster collaboration provide an interesting potential for smart specialisation, by fostering linkages and knowledge flows across different sectors<sup>26</sup>. It may also reduce the risk of fragmentation and establishment of many small cluster organizations lacking a critical mass, since each of the counties has decided to focus on specific competence areas and to collaborate with other regions. Over the last two years, there has also been an increased focus on international collaboration to further encourage knowledge sourcing to the region. Implementation of collaborative initiatives have been facilitated by the networks and knowledge on clusters and innovation systems management developed over the last decade, e.g. through the SLIM project.

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<sup>25</sup> Grufman Reje Management, in conference proceedings SLIM (2011) Internationalisering av små och medelstora företag som drivkraft för svenska innovationer. Cluster Conference in Karlstad, 8-9 February 2011

<sup>26</sup> Walendowski, J. (2010), Regional Innovation Monitor. Thematic paper 2. Policies and Processes of Smart Specialization: Realizing New Opportunities



### 3.3 Good practice case

To support the coordination and development of cluster organizations and innovative environments, the SLIM project (System Management for Innovative Platforms and Cluster Organisations) was initiated in 2007. The project runs over the period 2007-2013 and has co-funding from the three counties, as well as from Karlstad University, the Swedish Agency of Innovation Systems (VINNOVA) and the European Regional Development Fund (ERDF). The SLIM project has been approved co-funding from the ERDF in three phases, 2007-2008, 2009-2011 and 2011-2013. The total budget over the period amounts to approximately €5.4m, including a 50% co-funding from the ERDF<sup>27</sup>.

Projects to support regional cluster coordination and development have previously been encouraged by national agencies, i.e. in the national programme for innovation systems and cluster (Visanu), run in collaboration between three national agencies, and by the cluster programme of the Nutek (later Tillväxtverket). Region Värmland received funding from Nutek to develop methods for regional cluster collaboration and evaluation of cluster development. These competences and methods constituted an important basis for the collaboration between the three counties in the process of applying for ERDF funding in 2007.

The overall objective of the SLIM project is to increase innovation, employment and the development of new companies in the region, by increasing competence on how regional innovation environments can be built up, supported and developed. The project is based on a model for systems management containing three components; policy learning, process support and evaluation. One example of policy learning is an ambition to develop a Research Institute on Innovation Leadership (RIIL) at Karlstad University. The SLIM project also provides different types of process support to cluster managers, e.g. support to internationalization through business trips and invitations of foreign delegations. Since 2005, Region Värmland conduct an annual survey to cluster participants as an input for policy makers. As a result of the SLIM project, the survey has been refined and since 2008 it also includes cluster organisations in Dalarna and Gävleborg<sup>28</sup>. SLIM also provide various support, information and communication activities.

The project is stimulating a dialogue between regional public agencies and cluster organizations, business community, universities, institutions of higher educations and politicians. In the third phase, there is an increased focus on collaboration with national and international actors. The SLIM project has taken an active part in Innovation for Growth, an initiative in cooperation between the Royal Swedish Academy of Engineering Services (IVA), VINNOVA and Tillväxtverket, to provide the Ministry of Enterprise, Energy and Communication with input for developing a national innovation strategy. Study trips to the regions and seminars have been provided for national actors. There has also been an increased attention to establish partnerships and networks at the EU level. The project manager has, for example, participated in conferences and in the course “On cluster” arranged in collaboration with the European Cluster Observatory.

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<sup>27</sup> <http://projektbank.tillvaxtverket.se/projektbanken#page=a0003>

<sup>28</sup> SLIM (2010), Made in Sweden. Cluster Cooperation in Northern Central Sweden. Assessments 2010.



According to regional policy makers and cluster managers, the SLIM project has contributed to an increased collaboration and transfer of knowledge between cluster organisations as well as between the counties within Northern Central Sweden<sup>29</sup>. The project has had a learning focus, as evaluations of previous phases have impacted on subsequent phases<sup>30</sup>. Evaluation made by the SLIM project indicates positive results of the regional cluster organisations, in terms of new innovative environments and test labs, as well as new businesses, innovations and jobs. The project model and the accumulated knowledge of SLIM have been spread to other actors in Sweden and Europe promoting sustainable regional innovation and growth. In 2011, the SLIM-project received the Regio Star Award 2011, in competition with 31 projects from 18 countries in the final round. The objective of the RegioStars – The Awards for Innovative Projects – is to identify good practices in regional development and to highlight original and innovative projects, which could be attractive and inspiring to other regions<sup>31</sup>. A motive was the holistic approach and the success in developing regional areas of strength.

### 3.4 Portfolio of innovation support measures

The level of state funding for regional development (growth), including research and innovation, in the Northern Central Sweden is relatively high. In 2010, the share used specifically for supporting innovative environments varied between 20 and 35% between the three counties. The region also has considerable funding from the regional structural funds, as the ERDF Operational Programme for Northern Central Sweden is the second largest in Sweden. However, since there is only one young university and two university colleges, the region has a limited share of the Swedish state funding for research and research education and no part of the national strategic research funding.

- State Budget: Regional growth 2010 (€19.2m)<sup>32</sup>
- State Budget: HEI research and research education 2010 (€32m)<sup>33</sup>
- European Regional Development Fund 2007-2013 (€17.5m)<sup>34</sup>
- European Social Fund 2007-2013 (€66m)<sup>35</sup>

Over the last ten years, the Swedish government has issued a number of different policy initiatives to be implemented at regional level. Many of these require cooperation between public actors and other stakeholders at the regional level. Some examples are the guidelines concerning regional development programmes (RUP) and the European Structural Funds Programmes. Since the main part of the state funding for regional development in Northern Central Sweden is used as co-funding of EU structural funds programmes, national guidelines has impacted on the prioritization of the regional partnerships. There are also some more recent national initiatives, for example to encourage regional innovation strategies, the requirement of regional actors to develop competence platforms and the possibility to establish innovation offices that influence regional policy-making.

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<sup>29</sup> Rantahalvari, P. (2011), Systematic Leadership and Innovative management in Northern Central Sweden – Case Study, DG Regio

<sup>30</sup> E.g. Clarhäll, L. (2010), Utvärdering SLIM 2, Systemledning och lärande kring klusterprocesser/innovative miljöer I Norra Mellansverige

<sup>31</sup> RegioStars Award form part of the enhanced communication effort proposed in the Communication on Regions for Economic Change (COM (2006) 675).

<sup>32</sup> Swedish Government (2010), Budgetproposition för 2012, Utgiftsområde 19: Regional tillväxt

<sup>33</sup> Swedish Government (2010), Budgetproposition för 2012, Utgiftsområde 16: Utbildning och universitetsforskning

<sup>34</sup> Tillväxtverket (2010), Develop Sweden, The European Structural Funds in Sweden 2007-2010

<sup>35</sup> Svenska ESF-rådet (2011), Socialfonden i siffror 2011 – projektens deltagande och nytta

From national agencies, such as the Swedish Agency for Innovation Systems (VINNOVA) and the Swedish Agency for Economic and Regional Growth (Tillväxtverket), strategies to develop regional innovation strategies and clusters or innovation systems initiatives have been encouraged during the last decade. This has contributed to the establishment and early development of several of the cluster organizations in Northern Central Sweden, e.g. the Packaging Arena (customer packaging), Future Position X (GIS applications), Fiber Optics Valley and Triple Steelix. Since then, new cluster organizations have been developed also in less traditional areas, e.g. creative industries and tourism. Most of the cluster organizations have been prioritized for funding from the ERDF.

The national agencies have also supported the development and diffusion of knowledge concerning clusters and innovation systems by providing reports, seminars and platforms for cooperation. This has influenced regional development policies and, in Värmland in particular, cluster policies have become an integrated part of regional development strategies during the last ten years. These competences and methods developed have been further refined and implemented in the systems management support project SLIM, run in collaboration between the three counties. The project has contributed to put the region of Northern Central Sweden at the national as well as the EU map in terms of successful cluster and innovation systems development.

National policies have also contributed to the development of the role of higher education institutions in regional development in Sweden. Over the last ten years, the national demand for higher education institutions to be involved in regional development activities and commercialization of research results has increased. In the Swedish Higher Education Act of 2009, the expectation is that cooperation in higher education institutions should increase quality in education and research, as well as the use and commercialization of research results on a broad basis. Further, education institutions are required to make yearly reports to the Swedish National Agency for Higher Education (Högskoleverket) on how they cooperate with society. Still, the incentives for individual researchers to participate in cooperation in terms of national funding and academic merits are, in many cases, rather limited. It is therefore important for higher education institutions to find other motives for collaboration with the surrounding society, for example, a greater potential for attracting students and research funding. In Northern Central Sweden, a large share of collaboration is organized through the cluster organizations, particularly at Karlstad University but to an increasing extent also at the University Colleges of Dalarna and Gävle

Over the years, a number of different measures have been initiated to support innovation and entrepreneurship within or in close collaboration with higher education institutions, e.g. incubators, holding companies and science parks. In the Research and Innovation Proposition 2008<sup>36</sup>, the Swedish government suggested that Innovation Offices were to be established to stimulate innovation and commercialization of research through qualified advisory services (for example, relating to patenting, licensing and contract research)<sup>37</sup>. In 2010 eight universities received funding for developing innovation offices. The Four Leaf Clover is one of these innovation offices, established and run in collaboration between Karlstad University and three other universities in Central Sweden. Over the last years, initiatives have also been taken to develop open incubators, such as INOVA and InnoWent, supporting new business formation also in services sectors.

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<sup>36</sup> Swedish Government, (2009), Ett lyft för forskning och innovation, proposition 2008/09:50.

<sup>37</sup> <http://www.regeringen.se/sb/d/11327/a/135235>

Overall, cluster organisations and higher education institutions have become increasingly important partners in the regional development of Northern Central Sweden. To some extent, this development has been led by the county of Värmland. One example was the dialogue between public policy makers, cluster organizations and Karlstad University on how to invest SEK 50 millions received as part of the national restructuring of the Swedish defense sector in 2004. As a result, decisions were taken to develop three competence centres related to the established clusters in ICT, steel and pulp and paper. Another example is the dialogue concerning future research areas at Karlstad University, where Region Värmland had decided to co-finance ten professorships in sectors prioritised by regional industry through the different cluster organisations. To further improve the dialogue between the University of Karlstad and the cluster organisations, a “cluster room” to facilitate meetings between members of the cluster, researchers and external partners.

Overall, this indicates a broad innovation support portfolio in Northern Central Sweden, where a large number of regional innovation policy measures are intertwined with initiatives at national and international level. Regional cluster organizations and higher education institutions have had an increasingly important role in policy implementation.

### 3.5 Towards smart specialisation policies

The concept of smart specialization has not been introduced into policy discussion in Northern Central Sweden until recently. The main influence has come from the EU Commission, introducing the ambitions of smart, sustainable and inclusive growth<sup>38</sup>.

However, over the last decade the region – and the County of Värmland in particular - has implemented a cluster policy framework, supporting specialization in sectors of regional importance. It was recognized that the region was highly dependent a limited number of sectors, often based on the access of natural resources and dominated by a limited number of large multinational companies. In the late 1990s, increased international competition in important industries such as pulp and paper, steel and engineering turned into an economic challenge of the region. A pressure for increased productivity resulted in outsourcing and reduced regional employment. To secure the future presence of dominant companies in the region and to attract external investments and competence, it was important to develop an attractive and innovative environment.

The first cluster initiatives were related to the development of traditional industry sectors, such as pulp and paper, steel and engineering, and new high tech sectors, such as the ICT sector. During the following years, the need to supplement these sectors with the development of more services oriented, employment intensive sectors, e.g. creative sectors, construction, health care and tourism, was recognized. In 2010, there are 15 regionally prioritized cluster organizations present in the region, to support collaboration between business, public actors and research and higher education institutions.

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<sup>38</sup> European Commission (2010), Europe 2020, A strategy for smart, sustainable and inclusive growth, COM (2010) 2020

The process of cluster development was supported by several national initiatives and programmes for development of clusters and innovation systems during the 2000s. Many of the cluster organisations developed in the counties of Northern Central Sweden received co-funding from national programmes. However, the ambition of these programmes was not mainly to support traditional industry sector and in order to avoid the risks of regional lock-in and to stimulate innovation some new elements were included in the programmes. The VINNVÄXT programme, for example, required an international outlook and collaboration with research society or higher education institutions. Visanu and the cluster programme of Tillväxtverket actively supported cross-sector collaboration and internationalization. All programmes also required participation and commitment from both business and regional public actors or policy makers.

Since public actors had been involved in the development of regional cluster organizations, the cluster framework became a natural ingredient in regional development plans (RUP) and innovation and entrepreneurship support measures at the county level. When the Operational Programme of ERDF 2007-2013 in Northern Central Sweden was developed; experience from previous ERDF programme periods, the three RUP:s, a regional SWOT analysis and various evaluations and reports on cluster development formed a basis for introducing clusters and innovation systems as an important instrument for regional development.

One of the most interesting examples of smart specialization in Northern Central Sweden is the cluster organization TPP, established in 1999 in collaboration between companies and the municipality of Karlstad to support the pulp and paper sector in the region. Over time, TPP has increased company participation and become increasingly integrated in regional innovation policy. Today, TPP is responsible for implementation of a broad portfolio of innovation and entrepreneurship support measures, including networking, marketing events, competence development at various levels, the establishment of the Packaging Greenhouse (TPG) as a facility for research, testing or demonstration, and coordination of various development projects.

TPP also supported the initial development of the Packaging Arena (TPA). TPA was established as a spin-off project from TPP in 2005, but developed into an independent cluster organization focusing on the development of intelligent consumer packaging. Instead of using a traditional sector or value chain approach, TPA launched the idea of value stars – cross sector collaboration between for example the pulp and paper industry, process technology, printed materials, digitalization, graphics and design<sup>39</sup>.

Cross sector collaboration between related industries is one of the focus areas of the ERDF co-funded project Future Factory, run by TPP between 2007 and 2013. The vision is to support the development of new business, mainly consultancy and services companies in the intersection between pulp and paper and other competence platforms, for example on energy, ICT, packaging, process technology, bio refinery and environment. One example was Energy Square, a project developed in 2007 to increase energy efficiency in traditional process industries<sup>40</sup>. As a consequence of this initiative, collaboration with Karlstad University on energy efficiency has increased and a professorship in this research area was prioritized for co-funding by Region Värmland as one of ten new professorships.

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<sup>39</sup> [www.packagingarena.com](http://www.packagingarena.com)

<sup>40</sup> [www.energysquare.se](http://www.energysquare.se)

Another interesting policy measures supporting the potential for smart specialization in Northern Central Sweden is the ERDF co-funded SLIM project on cluster and innovation systems management. The project has contributed to an increased collaboration between cluster organizations in the three counties, as well as between policy makers at regional, national and international level. Today, clusters in Northern Central Sweden are participating in seminars and evaluations, providing opportunities for competence development, sharing experience, comparing results and initiating cross cluster innovation development project. At the same time, regional policy makers are becoming more inclined to support the cooperation with cluster organizations in other regions, rather than developing new cluster organizations. Through the SLIM-project, Northern Central Sweden has also become increasingly involved in national and international policy development, e.g. by participation actively in the process of developing a Swedish innovation strategy and by collaboration with the EU Cluster Observatory.

Overall, the cluster policy framework has supported the development of strong regional profiles in several areas, e.g. pulp and paper, packaging, geographic information systems and high voltage transmission. Cluster and innovation systems are still the main instruments for stimulating regional economic growth, but the region has also recognized the need for cross-sector as well as cross border collaboration to support knowledge flows and stimulate innovation and entrepreneurship. This could be interpreted as an attempt use smart specialization to foster related variety or diversification, in order to support knowledge re-combinations and avoid lock-in effects due to long term path dependency in the regional innovation systems.

### 3.6 Possible future orientations and opportunities

The ERDF has had an important impact in Northern Central Sweden, since most of the regional growth funding is used to co-fund projects during the programme period. The Operational Programme for 2007-2013 was one of the first initiatives to formalize the collaboration between three independent counties. Since national guidelines required a prioritization of projects by a regional partnership, strategic development projects were discussed in a forum with stakeholders from all counties.

One of the dominating instruments in the ERDF in Northern Central Sweden has been the support of clusters and innovation systems. Regional specialization on internationally competitive competence areas, clusters or innovation systems has been a dominating policy instrument for supporting regional development in the region over the last decade. As a relatively small region, in large parts characterized by a traditional industry structure, challenges of increased global competition, and a declining population, this has been a way of assuring critical mass in terms of funding and competence development in sectors of regional importance. Several of the cluster organizations in Northern Central Sweden have supported the development of competence in specific sectors. The competence on cluster development among regional policy makers, business representatives, researchers and cluster management represent an important asset for the region. It may be used for continued development of existing cluster organizations, as well as for the development of clusters organizations in emerging sectors.

To broaden the innovation base and create opportunities for increased entrepreneurship, several initiatives have been taken to support the development of services based industries. The cluster organizations DalaBit (wood and construction), Destination Dalarna (tourism) and BoomTown (creative industry) are still in an early phase and need to be furthered developed. However, a support infrastructure for the services sector is developing in the region, consisting of a combination of research institutions e.g. Centre for Services Research (CTF) at Karlstad University, and support organisations, e.g. the incubator INOVA, the health care innovation project VIVAN, and the innovation support office Four Leaf Clover.

Even if the concept of smart specialization has not been formally implemented in regional innovation policy in Northern Central Sweden, the need for combining regional specialization with collaboration between sectors and across county, region and national borders has been identified as important for future competitiveness. During the last years, several interesting initiatives have been taken to support innovation and entrepreneurship in the intersection between different cluster or competence areas, e.g. TPA, Energy Square and TPP Future Factory.

Cross sector collaboration between cluster organizations has also been supported by the SLIM project. Further, the project has contributed to increased collaboration between policymakers within the three counties of Northern Central Sweden, as well as with national and international policymakers. Participating in these activities provides a potential to increase co-ordination of design and implementation of innovation support measures at different levels, providing an increased opportunity for multi-level governance for strategic and integrated innovation policies.

In summary, the analysis identifies the following opportunities for possible future actions.

- First, support the development of related diversity by changing focus from regional specialization to smart specialization, building on the potential for innovation and entrepreneurship in the intersection between clusters and competence areas.
- Second, increase global knowledge flows and the regional influence on national policy design and implementation in a multi-level governance setting, by continuing the collaboration between regional actors and with national and international actors initiated through the SLIM project.
- Third, continue the on-going process of supporting the development of services-based sectors, to broaden the bases for regional innovation and entrepreneurship.



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## Appendix B Stakeholders consulted

1. Staffan Bjurulf, Project Manager SLIM, Region Värmland (10 October 2010)
2. Thomas Blom, Vice Rector (prorektor), Karlstad University (16 May 2011)
3. Anders Olson, Innovation Strategy, Region Värmland (31 August 2011)
4. Magnus Ernström, Project Manager, Region Gävleborg (14 October 2011)
5. Stefan Jansson, Project Manager, Regional Advisor, Region Dalarna (19 October 2011).
6. Per Persson, Programme Manager ERDF North Mid-Sweden, Tillväxtverket (19 October 2011).

## Appendix C RIM Repository information

# Baseline regional profile

- [SVERIGE](#)
- [Norra Mellansverige](#)
- Region North Middle Sweden
- NUTS Code SE31

## Regional Profile

### Introduction

The NUTS 2 regions in Sweden do not always correspond to functional or traditional regions. The NUTS 2 region Norra Mellansverige (North Middle Sweden), with approximately 800,000 inhabitants, consists of three independent NUTS 3 regions of relatively equal size; Värmland, Dalarna and Gävleborg.

## Repository

### Support measures

- [TPP Future Factory](#)
- [SLIM III – System Management for Innovative Platforms and Cluster Organisations in Northern Central Sweden](#)
- [High Voltage Valley](#)
- [Co-funded professorships at Karlstad University](#)
- [Smart City Innovation Playground \(Smart CIP\)](#)
- [Development of the Packaging Arena](#)
- [Fiber Optic Valley](#)
- [Triple Steelix](#)
- [Future Position X](#)

### Policy documents

- [Regional Development Strategy for Västernorrland](#)
- [The Dala Strategy - With common efforts towards 2016](#)
- [Possibilities close to you – Regional Development Programme Gävleborg 2009-2013](#)
- [Värmland is flourishing and knows no bounds – Regional Development Program 2009 - 2013](#)

### Organisations

- [Triple Steelix](#)
- [Fiber Optic Valley](#)
- [Samarkand2015](#)
- [Future Position X](#)
- [Karlstad University](#)
- [The Packaging Arena](#)

- [The Paper Province \(TPP\)](#)
- [Region Gävleborg](#)
- [Regional Cooperation Council of Dalarna](#)
- [Region Värmland](#)

## **Economy**

The largest municipalities are Gävle, Karlstad and Falun, ranging between 94,000 and 55,000 inhabitants. The percentage of inhabitants born abroad is below the national average.

The share of the population with a higher education, ranging between 11-13%, is slowly increasing but is still below the national average of 16%. At NUTS 3 level, unemployment at the end of 2009 in Dalarna and Gävleborg was around the national average of 9%, but considerably higher in Värmland with 12%. The average share of employment in high tech industries and knowledge intensive services was about 3.9%, well below the national average of 6.2%.

Average gross domestic product (GDP) during the period 2000-2008 was €22,297m, or about 7.7% of the national total. The region is well endowed with national resources. It is dominated by traditional capital intensive sectors, such as steel and engineering, and pulp and paper, which accounts for a large share of Swedish exports. Other important sectors are machinery, transport vehicles, food processing, ICT and tourism. The percentage of gross value added (GVA) generated by manufacturing industry (ranging between 33-49%) is well above the national average of 26%. GVA from agriculture and forestry ranges between 4-6% and in Värmland, 8% of GVA is generated by the energy sector. This is about twice the national average. Employment in the services sector (68%) is below the national average of 74%.

## **Research, Development & Innovation**

In Norra Mellansverige, an important resource for regional innovation is Karlstad University. In several of its research areas, the university is in close cooperation with the regional business community. There are also the two university colleges of Falun/Borlänge and Gävle. To increase the level of education in the region, efforts have been made to develop distance education.

There are several large multinationals in the traditional sectors of pulp and paper (Stora Enso, Moelven, BTG, Kvaerner Pulping and Metso Paper) and steel and engineering (SSAB, Sandvik and Outokumpu). The average annual business expenditure on research and development (R&D) during the period 2000-2008 was 1.1%, well below the national average of 2.8%. One explanation for this is the large number of external headquarters, making the region vulnerable to external decisions.

The innovation system is formed around several cluster initiatives, collaborations

with regional higher education institutions and innovation platforms. The cluster initiatives are based on cooperation between different actors. Innovation platforms are set up around new business challenges, demanding interaction between different branches and competences. The challenge is to find new constellations of people, industries, companies and researchers that may come up with innovative solutions. There are several well established cluster initiatives and innovation platforms. One example is the Packaging Arena, which has been appointed one of the most interesting cluster initiatives in the EU. Other examples are Paper Province (pulp and paper) and Triple Steelix (steel and engineering), Destination Dalarna (tourism) and Fiber Optics Valley (ICT).

The innovation support structure consists of a variety of organisations and measures to support the development of innovations and business ideas. Many of the organisations cooperate closely with higher education. The development projects in the region are mainly funded by the national government and the EU.

## **Governance**

The national public entities involved in the system can be grouped into four categories, i.e. developing policies on national and regional level (parliament, government, ministries, local authorities and county councils), supporting implementation of policies and financing innovation and R&D (e.g. research funding institutes, the agency for innovation systems - VINNOVA, sectoral agencies), implementing research and development (e.g. universities and research institutes) or supporting commercialisation and entrepreneurship (e.g. the agency for economic and regional growth - Tillväxtverket, ALMI, Innovation Bridge, incubators). Many of these have regional representation.

The region of Norra Mellansverige is part of the national innovation system and the regional governance structure is a mixture of public and private initiatives, involving actors at different levels. The level of regional autonomy concerning regional innovation policies is rather high. A structural funds programme has been developed for the region. The regional structural funds have strongly supported the development of the innovation platforms in the three NUTS 3 regions. One example is the joint project System Management for Innovative Platforms and Cluster Organisations (SLIM) in Northern Central Sweden. Through process support, evaluation and policy learning, the project supports cluster organisations as a tool for enhanced regional development.

However, the formal governance structure of the NUTS 3 regions is less integrated. The three regional development councils have the main responsibility for regional development and growth in their respective NUTS 3 region, including developing regional development strategies. They are funded by municipalities, the regional county councils and the central government. For implementing the strategies, a strong sense of political leadership has been important in gaining the support of key actors, e.g. business leaders and the higher education sector.

## Policy

During the last years, innovation and renewal have become increasingly important in the regional growth policy in Sweden. Today, all NUTS 3 regions are required to present a regional development plan (RUP). In some regions, this plan is supplemented with an action plan for regional growth (RTP) or a regional innovation strategy. These strategies are often developed in partnership with actors of different sectors, e.g. business, public sector, universities and non-profit organisations.

Stimulating innovation that leads to new jobs and business is one of the greatest challenges for the three regional development councils in Norra mellansverige. Another challenge is to promote entrepreneurship. The use of innovation platforms, where academia, trade and industry can exchange expertise and lessons learned, has played an important role as a tool for economic structural development. The main focus is on the region's strong industries, as these make the regions attractiveness for international companies and investments.

There are several ongoing initiatives to stimulate regional innovation. An evaluation of the SLIM project indicates positive results, in terms of new innovative environments and test labs, as well as new businesses, innovations and jobs. The project model and the accumulated knowledge have been spread to other actors in Sweden and Europe promoting sustainable regional innovation and growth. At NUTS 3 level, all regions are in the process of improving their innovation activities. In Värmland, a first letter of agreement concerning a future research and innovation strategy has been signed between Region Värmland and Karlstad University. In Dalarna, an innovation systems model has been developed and Gävleborg is currently developing a regional innovation strategy.

## Support measure

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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## Support Measure

Title of measure

TPP Future Factory

### Full title

## TPP Future Factory

### Duration

From: 2007

To: 2013

Policy objectives

- 1.3.1. Cluster framework policies

### Presentation of the measure

The project TPP Future Factory was initiated in 2007 in cooperation between university, industry and public sector. The first phase of the project was run 2007-2008 and a second phase 2009-2010, with co-funding from the ERDF. The ambition was to identify and develop strategic business sectors related to pulp and paper, for example on energy efficiency, environmental issues, packaging and ICT. One result of this was the establishment of Energy Square. Today, this is a separate project within TPP, with the objective to facilitate development and commercialisation of new products and services for energy efficiency in pulp and paper, linking industry, university and research institute activities in this area. Another initiative spun-off from TPP was The Packaging Arena, focusing on consumer needs and packaging design.

For 2011-2013, a third phase of the project (Innovative Processes) has been approved for ERDF-funding. This phase is run in close cooperation with Karlstad University and focus on international marketing, continued development of the strategic platforms and the development of the innovation support system for products, processes, services and markets. The project has a total budget around €2m, with 50% co-funding from ERDF, €0.65 from Region Värmland, €0.15 from Karlstad University and the rest from four municipalities.

### Keywords

- Research infrastructure
- Science-industry cooperation
- Innovation networks

Budget, source and type of funding

Currency: **EUR**

| <b>Source of funding</b> | <b>2007</b> | <b>2009</b> | <b>2011</b> |
|--------------------------|-------------|-------------|-------------|
| National public funds    |             |             |             |
| Regional public funds    | 254,680     | 556,000     | 1,015,000   |
| EU Structural funds      | 207,316     | 556,000     | 1,015,000   |
| Private funds            |             |             |             |



Other

Form of funding provided

- Grants
- Other

Policy learning

### **Extent to which the measure can be considered as a success and worthy of policy learning**

It is too early to judge the success of the measure (e.g results of first call for proposals still not known).

### **Evaluation report(s)**

- [tpa\\_utvardering.pdf](#)

### **Evidence of outcomes based on evaluation and other evidence**

No evaluation is available.

### **Do's and Don'ts**

Further comments concerning the measure are expected from regional representatives and project managers.

### **This measure is recommended as an example of regional good practice to policy-makers from other regions:**

No

Organisation(s) responsible

- [The Packaging Arena](#)

### **Support measure**

- [SVERIGE](#)
- [Norra Mellansverige](#)
- Region Norra Mellansverige
- NUTS Code SE31

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## Support Measure

Title of measure

SLIM III – System Management for Innovative Platforms and Cluster Organisations in Northern Central Sweden

### Full title

SLIM III - projekt – Systemledning för innovativa miljöer och klusterprocesser i Norra Mellansverige

### Duration

From: 2007

To: 2013

Policy objectives

- 1.3.1. Cluster framework policies
- 2.2.3. R&D cooperation
- 4.2.1. Support to innovation management and advisory services
- 2.2.2. Knowledge Transfer

### Presentation of the measure

The System Management for Innovative Platforms and Cluster Organisations (SLIM) is a regional development project in the NUTS2 region Northern Central Sweden. It is based on collaboration between three NUTS3 regions; Värmland, Dalarna and Gävleborg, and focuses on capacity building, learning processes and development of new methods and tools for regional growth through innovative platforms and cluster organisations. Overall, the SLIM-project covers 15 different cluster organisations with a total of about 700 companies and 60 000 employees. The objective is to increase company efficiency in terms of stimulating innovation, employment and the development of new companies in the region.

The SLIM project, which has been approved co-funding from the European Regional Development Fund (ERDF) in several phases, runs over the period 2007-2013. There is also collaboration with national agencies, such as the Agency for Economic and Regional Growth (Tillväxtverket) and the Agency for Innovation Systems (Vinnova).

An evaluation of the SLIM project indicates positive results, in terms of new innovative environments and test labs, as well as new businesses, innovations and jobs. The project model and the accumulated knowledge have been spread to other actors in Sweden and Europe promoting sustainable regional innovation and growth. In 2011, the SLIM-project received the Regio Star Award 2011 from the EU.

The third phase of the project, SLIM III, is based on the results from the previous phases and runs between 2011 and 2013. The third phase is using the same structure as the former phases, in order to develop a regional platform for process support. Three sub-projects have been identified in the third phase: process support, measuring effects and policy learning. There are also various support, information and communication activities, including an increased focus on exit strategies and the collaboration with national actors. The project phase has a total budget of around €3m. Approximately 50% is provided by the ERDF, about €0.3m by academia (Karlstad University and the university colleges of Dalarna and Gävle), €1m by regional authorities in the three counties, and a smaller amount from national actors.

## **Keywords**

- Science-industry cooperation
- Innovation networks
- Cluster

Budget, source and type of funding

Currency: **EUR**

| <b>Source of funding</b> | <b>2007</b> | <b>2009</b> | <b>2011</b> |
|--------------------------|-------------|-------------|-------------|
| National public funds    | 10,000      | 47,000      | 60,000      |
| Regional public funds    | 330,602     | 900,000     | 1,396,021   |
| EU Structural funds      | 340,602     | 947,000     | 1,456,021   |
| Private funds            |             |             |             |
| Other                    |             |             |             |

Form of funding provided

- Grants
- Other

Policy learning

## **Extent to which the measure can be considered as a success and worthy of policy learning**

There is evidence of an impact of the measure based on verifiable indicators or an evaluation (e.g. sales generated from new products, jobs created, etc.)

## **Evaluation report(s)**

- [Made in Sweden webb.pdf](#)
- [utvarderingslimii.doc.docx](#)

## **Evidence of outcomes based on evaluation and other evidence**

The most positive factor is the knowledge developed in co-operation with the Stockholm School of Economics. Several education products has been created by the project, e.g. a book about balancing clusters and constructive development forces, as well as a DVD-production on Clusters.

The most negative factor is the "irregularity", which is linked to the short time of financial periods. The project has operated with funding periods of one or two years and this has been a major challenge, in order to create a long-term and sustainable structural development.

## **Do's and Don'ts**

Discern the actors - it is important to clarify the task of different actors who will carry out innovative work and in what context actors operate in.

Use evaluation as a tool for enhancing innovation - annually evaluation of attitudes and perceived effects of the managers in companies and analysing how this effects innovation and renewal.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

Yes

Organisation(s) responsible

- [Regional Cooperation Council of Dalarna](#)
- [Region Gävleborg](#)
- [Region Värmland](#)

## **Support measure**

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
- 
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## **Support Measure**

Title of measure

High Voltage Valley

## **Full title**

High Voltage Valley

## **Duration**

From: 2009

To: 2013

Policy objectives

- 2.2.3. R&D cooperation
- 4.2.3. Support to technology transfer between firms

## **Presentation of the measure**

The High Voltage Valley (HVV) was initiated in 2005 by the local development agency, Samarkand2015, as a project to develop the regional research community in power transmission and develop a large research facility. However, the local involvement was limited and a decision was to change the direction of HVV and develop a cluster organisation with closer cooperation with regional actors and with small and medium sized companies.

Funding of HVV is provided by various actors, through different projects. During 2009-2010, a major project was initiated in order to develop the concept of HVV. The project had a total budget of €0.5m and was co-funded by the ERDF and regional actors. Another project, focusing on business and cluster development, was financed by the cluster programme of the National Agency for Economic and regional growth. During the period, HVV also submitted an application to the VINNOVA programme on Innovation for a Sustainable Future, which received a total funding of €1.5m.

A new application for the period approved for ERDF-funding 2011-2013 was approved by the ERDF. The purpose is to further strengthen the innovative environment. One important mission is access to relevant competences. Within the project HVV will initiate activities to attract competence, develop the brand name and communicate. Another important activity is also to stimulate innovation and competence development of SMEs, by identifying needs for contacts with actors in the innovation system, and supporting commercialisation, development of new products and prototyping. Finally, there is a strong focus also on internationalisation, to become a more mature cluster initiative. The project has a total budget close to €1.2m, co-funded by the ERDF (€0.57m), regional actors and municipalities.

## **Keywords**

- Innovation networks
- Cluster

- Knowledge transfer

Budget, source and type of funding

Currency: **EUR**

**Source of funding 2009**

National public funds

Regional public funds 251,750

EU Structural funds 251,750

Private funds

Other

Form of funding provided

- Grants
- Other

Policy learning

**Extent to which the measure can be considered as a success and worthy of policy learning**

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early to judge results or impact

**Evidence of outcomes based on evaluation and other evidence**

Further comments concerning the measure are expected from regional representatives and project managers.

**Do's and Don'ts**

Further comments concerning the measure are expected from regional representatives and project managers.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

No

Organisation(s) responsible

- [Regional Cooperation Council of Dalarna](#)
- [Samarkand2015](#)

# Support measure

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
- 
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## Support Measure

Title of measure

Co-funded professorships at Karlstad University

### Full title

Co-funded professorships at Karlstad University

### Duration

From: 2010

To: 2014

Policy objectives

- 2.1.1. Universities

### Presentation of the measure

In 2010, the Region Värmland and Karlstad University signed a Letter of Intent for 2010-2014 concerning co-funding of professorships at Karlstad University. The purpose was to increase co-operation between the university and industry in new, regionally prioritised research areas. This may result in as many as ten new professors at Karlstad University, increasing the number of professorships by 15%.

The long term ambition is to develop strong research environments in sectors that are important for the future development of Värmland, such as steel and manufacturing, energy efficiency, ICT and services. Prioritisation of four research areas has taken place in collaboration between the university, the Region Värmland and regional cluster initiatives. Over time, this may increase the potential for external research funding, strengthening the regional businesses as well as the academic sector.

According to the agreement, Region Värmland is providing a yearly amount of €1m over five years, in total €5m. A matching co-funding from Karlstad University is required. Another €5m is expected from public research funding and



private companies, resulting in a total of about €15m over five years.

The first new professor was appointed to the Department of Mechanicals and Materials Engineering in March 2011.

## **Keywords**

- Research infrastructure
- Science-industry cooperation
- Universities

Budget, source and type of funding

Currency: **EUR**

| <b>Source of funding</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> |
|--------------------------|-------------|-------------|-------------|-------------|-------------|
| National public funds    |             |             |             |             |             |
| Regional public funds    | 2,000,000   | 2,000,000   | 2,000,000   | 2,000,000   | 2,000,000   |
| EU Structural funds      |             |             |             |             |             |
| Private funds            |             |             |             |             |             |
| Other                    |             |             |             |             |             |

Form of funding provided

- Grants
- Other

Policy learning

## **Extent to which the measure can be considered as a success and worthy of policy learning**

It is too early to judge the success of the measure (e.g results of first call for proposals still not known).

## **Evidence of outcomes based on evaluation and other evidence**

It is too early to evaluate positive and/or negative factors impacting on the degree of success.

## **Do's and Don'ts**

It is too early to evaluate policy learning.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

No

Organisation(s) responsible

- [Karlstad University](#)
- [Region Värmland](#)

## Support measure

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
- 

## Support Measure

Title of measure

Smart City Innovation Playground (Smart CIP)

### Full title

Smart City Innovation Playground (Smart CIP)

### Duration

From: 2011

To: 2013

Policy objectives

- 1.3.1. Cluster framework policies

### Presentation of the measure

This is a project to develop an Open Innovation Playground, with the ambition to become Europe's leading research and competence centre for the development and application of geographic information technology and methods by 2014. The purpose is to use the competences, the environment and the tools developed by the cluster organisation Future Position X, and to exploit the potential of the rapid market growth of the GIS/GIT (geographic information systems/technologies) sector. There is also an ambition to contribute to the regional structural change, by providing match making between SMEs in the GIT-sector and clients in the services or technology sector, and to develop new platforms and demonstration

facilities for increased entrepreneurship and service innovations.

The project is run by FPX and has a total budget of €3.2m. Half of the funding is provided by the ERDF and the rest by regional actors (Gävle municipality, the County Council of Gävleborg and the university college of Gävle) and national actors (the Swedish Mapping, Cadastral and Land Registration Authority and the Swedish Radio Administration).

## **Keywords**

- Information and communication technologies
- Innovation networks
- Cluster

Budget, source and type of funding

Currency: **EUR**

### **Source of funding 2011**

National public funds

Regional public funds 1,610,062

EU Structural funds 1,610,062

Private funds

Other

Form of funding provided

- Grants

Policy learning

## **Extent to which the measure can be considered as a success and worthy of policy learning**

It is too early to judge the success of the measure (e.g results of first call for proposals still not known).

## **Evidence of outcomes based on evaluation and other evidence**

It is too early to evaluate positive and/or negative factors impacting on the degree of success.

## **Do's and Don'ts**

It is too early to evaluate policy learning.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

No

Organisation(s) responsible

- [Future Position X](#)

## **Support measure**

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
- 
- 

## **Support Measure**

Title of measure

Development of the Packaging Arena

### **Full title**

The Packaging Arena - regionalt kompetenscentrum för konsumentdriven förpackningsutveckling

### **Duration**

From: 2007

To: 2011

Policy objectives

- 2.2.3. R&D cooperation
- 4.1.1. Support to sectoral innovation in manufacturing
- 4.2.1. Support to innovation management and advisory services

### **Presentation of the measure**

Researchers and companies in the pulp and paper industry are co-operating in the framework of the cluster The Packaging Arena (TPA). Within TPA two projects have been realised: one was implemented between 2007-2009 (TPA 1), and the second is running between 2010-2012 (TPA 2).

TPA 1 was concentrated on the development of consumer-driven packaging development. For example, the project was co-coordinating advanced prototype environments for packaging development and packaging research. Other activities in TPA 1 were also marketing of the regions competence and internationalisation of cluster co-operation.

TPA 2 is basically a continuation of TPA 1, where the purpose is to create regional growth and increase the competitiveness in the region's small and medium sized companies in the pulp and paper industry. The main focus in TPA 2 is to further develop TPA as an European node in the packaging industry. TP2 intends to continue to develop technical infrastructure in order to attract global actors to the region and TPA. The applied Service Research Center at Karlstad University (TCF) is also integrated in the project, and so also research on packaging for a sustainable development .

## **Keywords**

- Science-industry cooperation
- Innovation networks
- Innovation support services

Budget, source and type of funding

Currency: **EUR**

| <b>Source of funding</b> | <b>2007</b> | <b>2010</b> |
|--------------------------|-------------|-------------|
| National public funds    | 1,330,000   | 1,530,000   |
| Regional public funds    | 1,000,000   | 820,000     |
| EU Structural funds      | 1,330,000   | 1,250,000   |
| Private funds            |             |             |
| Other                    |             |             |

Form of funding provided

- Grants
- Other

Policy learning

## **Extent to which the measure can be considered as a success and worthy of policy learning**

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early to judge results or impact

## **Evaluation report(s)**

- [The Packaging Arena - The development of an innovative cluster.pdf](#)

## **Evidence of outcomes based on evaluation and other evidence**

Important lessons to be learned from this measure have been introduced in the attached evaluation. First, it has shown the importance of being able to create a functioning business and project development model in which business ventures are outlined and actors within the system can act together. Second, it has provided the ability to create an attractive forum for system solutions in the area of packaging so that large international brand owners can be persuaded to transfer their development work to TPA. Third, the fact that operating on international markets is the key to success factor has become evident. In this way TPA has the opportunity to position the region, actors and forum for joint action internationally, attract new expertise and resources to TPA, and identify new needs and problems that actors in TPA can collaborate on. Finally, it has provided the insight that virtual process management works.

### **Do's and Don'ts**

Further comments concerning the measure are expected from regional representatives and project managers.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

Yes

Organisation(s) responsible

- [The Packaging Arena](#)

### **Support measure**

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
- 
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### **Support Measure**

Title of measure

Fiber Optic Valley

## **Full title**

Fiber Optic Valley

## **Duration**

From: 2001

To: 2011

Policy objectives

- 2.2.3. R&D cooperation
- 2.3.1. Direct support of business R&D (grants and loans)

## **Presentation of the measure**

In order to increase growth in Jämtland County the municipality of Hudiksvall took the initiative to identify potential areas of growth. The municipality decided to turn the region into a centre for fibre optics, a technique which has long history in the region by Ericsson Network Technologies.

Fiber Optic Valley is a regional innovation system, which main aim is to transform innovative ideas into competitive products and services. The overall objective is regional growth and to become Europe's leading centre in research, expertise and enterprise in the field of fibre optics by 2015. The main activities are to assist the growth of global and local companies. This is achieved by support in form of research, training, financing, contacts and business development combined with an equally unique test environment for technical tests and behavioural science studies. The focus is on three areas of activities:

- expanding fibre networks for households;
- development of digital services; and
- industrial applications.

The overall aim of the project is to create the best possible conditions for the growth of the partners. This principle applies regardless of whether it concerns start-ups, a multinational corporate group or a single innovator.

## **Keywords**

- Science-industry cooperation
- Innovation networks
- Cluster

Budget, source and type of funding

Currency: **EUR**

| <b>Source of funding</b> | <b>2007</b> | <b>2009</b> |
|--------------------------|-------------|-------------|
|--------------------------|-------------|-------------|



National public funds 6,000,000 2,930,000

Regional public funds 529,000 313,000

EU Structural funds 1,110,000 906,500

Private funds

Other

Form of funding provided

- Grants
- Other

Policy learning

## **Extent to which the measure can be considered as a success and worthy of policy learning**

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early to judge results or impact

## **Evaluation report(s)**

- [Vinnvaxt half way evaluation.pdf](#)

## **Evidence of outcomes based on evaluation and other evidence**

The representatives of regional authorities emphasise that through the long-term funding and involvement of VINNVÄXT, the investment in Fiber Optic Valley has gained a strong foothold in the region with good prospects of decent results compared to short-term projects. The long-term approach and involvement are also helping attract the involvement of other players and the view is that VINNOVA's focus in the programme is more on impacts than formalities. It is hoped that the fibreoptic development will become an important part of the region's employment. In that context, the operation emerging through Fiber Optic Valley is contributing new models for vacancies with high knowledge content. Moreover, Mid Sweden University is now planning a Master's course focusing on fibreoptics in conjunction with Fiber Optic Valley.

## **Do's and Don'ts**

Initially, the measure led to rivalry between other regions and municipalities. Other regions with fibreoptic operations were initially negative about Fiber Optic Valley ending up in Hudiksvall. Over the years, it has become clear that it would have been difficult for the Fibreoptic Laboratory to remain without the contribution of money from the Structural Funds and other regional funds that

were released. In terms of the differences between municipality and region, it seems that politicians' change of attitude to more generally regional and municipal thinking has gone quicker than expected. However, there is still a risk of jealousy and of competing for funds and involvement within the county. In this regard, the municipality stresses the importance of the region's priorities being clear.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

No

Organisation(s) responsible

- [Fiber Optic Valley](#)

## Support measure

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
- 
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## Support Measure

Title of measure

Triple Steelix

### Full title

Triple Steelix

### Duration

From: 2004

To: 2004

Policy objectives

- 2.2.3. R&D cooperation
- 4.2.3. Support to technology transfer between firms
- 2.2.2. Knowledge Transfer

### Presentation of the measure

Triple Steelix is as well a regionally prioritised development initiative, partly financed and supported by the Swedish Governmental Agency for Innovation Systems (Vinnova) programme on regional innovation systems, Vinnväxt. The steel industry in the industrial region of Bergslagen is globally leading in specialised steel products and the strategic idea of Triple Steelix is to be an active platform (coordinator/facilitator) in order to create a dynamic and innovative arena in the steel industry. The platform involves actors, such universities, companies and public sector. The participating actors actively learn from each other's experiences and the main aim is to generate new business ideas and gather their forces to develop new products, services and companies. Triple Steelix main objectives are to:

- increase exchange of information between university, SMEs and large companies utilising the strong existing base of knowledge around steel industry in Bergslagen region;
- strengthen the ability of innovation through the development of new networks and meeting places; and
- stimulate entrepreneurship through the creation and demonstration of success stories.

## **Keywords**

- Science-industry cooperation
- Innovation networks
- Innovation support services

Budget, source and type of funding

Currency: **EUR**

| <b>Source of funding</b> | <b>2004</b> | <b>2008</b> |
|--------------------------|-------------|-------------|
| National public funds    | 6,000,000   |             |
| Regional public funds    |             |             |
| EU Structural funds      |             | 300,000     |
| Private funds            |             |             |
| Other                    | 6,000,000   |             |

Form of funding provided

- Grants
- Other

Policy learning

## **Extent to which the measure can be considered as a success and worthy of policy learning**

There has been a positive response by beneficiaries to the measure (e.g. over-subscribed in terms of requested versus available budget) but it is too early

to judge results or impact

## **Evaluation report(s)**

- [Vinnvaxt half way evaluation.pdf](#)

## **Evidence of outcomes based on evaluation and other evidence**

The most positive factors has been:

- Contact and networks has been created that not have developed without Triple Steelix;
- SMEs has learned to take advantage of knowledge within universities; and
- people have come together and developed new ideas and knowledge.

## **Do's and Don'ts**

The most important do's are:

- to create trust and understanding of the measure; and
- information activities, e.g. it is important that all collaborative partners and financiers receive information continuously.

## **This measure is recommended as an example of regional good practice to policy-makers from other regions:**

Yes

Organisation(s) responsible

- [Regional Cooperation Council of Dalarna](#)

## **Support measure**

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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## **Support Measure**

Title of measure

Future Position X

## **Full title**

Future Position X

## **Duration**

From: 2007

To: 2007

Policy objectives

- 2.2.3. R&D cooperation
- 4.2.3. Support to technology transfer between firms

## **Presentation of the measure**

Future Position X (FPX) is a regionally prioritised development initiative and cluster with focus on the innovative use of Geographic Information Systems (GIS). FPX objective is, on behalf of its members' interests and ability, to act as a driving motor in the national centre of excellence in GIS and location-based services. FPX objective is as well to act as a platform for common development projects and resources, and manage the brand FPX. Future Position X is an independent arena for demonstration, development and marketing of services based on geographic information and a meeting place for companies and organisations within the GIS-field. FPX works to develop Region Gävleborg into an international GIS-centre. FPX working in four areas of activities:

- research - collaborates with a research institute in order to stimulate applied research;
- lab - has created a test lab for high-profile GIS solutions;
- markets - market analysis of GIS services; and
- network - engage and co-operate in networks, both with local, regional and international actors.

The target group is their members and other regional stakeholders, such as entrepreneurs, companies and universities.

## **Keywords**

- Science-industry cooperation
- Innovation networks
- Cluster

Budget, source and type of funding

Currency: **EUR**

| <b>Source of funding</b> | <b>2008</b> | <b>2010</b> |
|--------------------------|-------------|-------------|
| National public funds    | 728,100     | 315,388     |
| Regional public funds    | 614,031     | 517,963     |
| EU Structural funds      | 1,330,000   | 901,851     |
| Private funds            |             | 20,000      |
| Other                    |             |             |

Form of funding provided

- Grants
- Other

Policy learning

### **Extent to which the measure can be considered as a success and worthy of policy learning**

The measure has achieved its intended targets in terms of results (e.g. number of enterprises investing in innovative projects, people trained)

### **Evaluation report(s)**

- [rapport gavleborg 2010 vers 1009031.pdf](#)

### **Evidence of outcomes based on evaluation and other evidence**

One success factor has been strong regional and national support, in combination with a flexible project organisation. One another important success factor has been the large number of persons, companies and organisations involved in the network platform. This has created an important input and stimulation of co-operation, new business alliances and new services. The internationalisations process has as well been a success, including co-operation with Chinese companies, as well as public actors.

### **Do's and Don'ts**

The most important do's are:

- as an regional initiative it is important to outline a distinct regional growth strategy for the county;
- to communicate the strategy clearly and which types of measure are planned to be implement; and
- that the strategy is guiding co-financing.

The most important don't is not to leave your growth strategy and dissipate engagement and resources.

**This measure is recommended as an example of regional good practice to policy-makers from other regions:**

Yes

Organisation(s) responsible

- [Region Gävleborg](#)

## Policy document

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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## Policy Document

Regional Development Strategy for Västernorrland

Regional Utvecklingsstrategi för Västernorrland

### Organisation responsible

[County Administrative Board of Västernorrland](#)

Content

In spring 2011, a first draft of a new Regional Development Strategy for Västernorrland (RUS) was presented for comments. The authority responsible for developing the strategy was the County Administrative Board. The strategy is a joint development platform for the County of Västernorrland and has been developed in collaboration with a working group consisting of representatives of municipalities, the collaboration of municipalities and the County Council of Västernorrland. Representatives from industry, academia, public agencies and civil society have also participated in the process, for example during workshops and various meetings.

The draft is based on an analysis report, with detailed information about

development trends and indicators.

## **Year of publication**

2011

## **Link to website**

Link: <http://www.lansstyrelsen.se/vasternorrland/SiteCollectionDoc ...>

## **Policy document**

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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## **Policy Document**

The Dala Strategy - With common efforts towards 2016

Dalastrategin – Med förenade krafter mot 2016

### **Organisation responsible**

[Regional Cooperation Council of Dalarna](#)

Content

[The Dala strategy](#) is an instrument of the Regional Cooperation Council of Dalarna to form a regional policy for the county. The policy document outlines activities and guiding future decisions in the Region of Dalarna. The Dala Strategy identifies four challenges;

- globalisation;
- supplying skilled labour;
- environmental changeover; and
- local conditions.

The policy document includes strategies to meet these challenges. The strategies and priorities are divided into five areas of development. The strategic area of



"The capable Dalarna" outlines activities in business development and innovation. This includes the following activities:

- stimulation of growth companies, entrepreneurship and business start-ups;
- strengthening of the social economy;
- development of smart energy solutions;
- development and strengthening innovative environments for sustainable growth;
- investments in research and development; and
- supplying of skilled labour to meet business and societal needs.

The strategies define the future development of the region and will set the direction of future activities in innovation, entrepreneurship and business development.

## **Year of publication**

2006

## **Link to website**

Link: <http://www.regiondalarna.se/Verksamhet/Engelska/About-us1/>

## **Policy document**

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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## **Policy Document**

Possibilities close to you – Regional Development Programme Gävleborg  
2009-2013

Möjligheter nära dig – Regionalt Utvecklingsprogram Gävleborg 2009-2013

## **Organisation responsible**

[Region Gävleborg](#)

## Content

The Regional Development Programme of Gävleborg County aims to develop common visions, goals and action plans for the future development of the region. This work will be done through co-operation between various actors at local, regional and national level. Examples of important strategy areas in the programme are business development, communications, infrastructure, housing, environment, employment and other public services. The regional development programme will therefore act as an umbrella for other regional development activities, such as the regional growth programme, innovation and business development.

An important part of the area of business development is to develop a new innovations strategy, which is elaborated on the basis of the regional development plan. The purpose of the innovation strategy is to identify the strengths of the region's innovation system and support the regional development programme. Region Gävleborg also intends to develop an industrial policy programme and a strategy for tourism development.

### **Year of publication**

2009

### **Link to website**

Link: <http://www.regiongavleborg.se/11/regional-utveckling.html>

### **Policy document**

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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### **Policy Document**

Värmland is flourishing and knows no bounds – Regional Development Program  
2009 - 2013

Värmland växer – och har inga gränser – Regionalt Utvecklingsprogram 2009-2013

## Organisation responsible

### [Region Värmland](#)

#### Content

The Regional Development Programme, Värmland is flourishing and knows no bounds - Regional Development Program 2009 - 2013, is the region's joint platform for regional development. It is used for long-term planning with the objective of achieving sustainable growth. The programme will be realised by concentrating efforts in five areas:

- leadership;
- innovative environments;
- skills supply;
- accessibility; and
- quality of life.

It addresses trends in a globalising world that affect Region Värmland and discusses the ongoing challenges for Region Värmland. The efforts related to Innovation Environments are divided into three areas of development:

- innovative entrepreneurs - the goal is more and growing knowledge-driven companies and exporting companies and to stimulate increased entrepreneurship in innovative environments;
- innovative clusters - the goals is to create competitive international clusters and to build stable and long-term cluster organisations; and
- innovation for sustainable growth - the goal is to increased rate of innovation and to work for increased external funding of research.

## Year of publication

2009

## Link to website

Link: [http://www.regionvarmland.se/om-region-varmland/english-summ ...](http://www.regionvarmland.se/om-region-varmland/english-summ...)

## Organisation

- [SVERIGE](#)  
[Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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# Organisation

Triple Steelix

Triple Steelix

Link: [http://www.triplesteelix.se/home\\_\\_17](http://www.triplesteelix.se/home__17)

Röda Vägen 3  
Borlänge,  
SE-781 28

## Mission

Triple Steelix is a regionally prioritised development initiative, partly financed and supported by the Swedish Governmental Agency for Innovation Systems (Vinnova) programme on regional innovation systems, Vinnväxt. The steel industry in the industrial region of Bergslagen is globally leading in specialised steel products and the strategic idea of Triple Steelix is to be an active platform (coordinator/facilitator) in order to create a dynamic and innovative arena in the steel industry.

## Activities

The platform involves actors, such as universities, companies and the public sector. The participating actors actively learn from each other's experiences and the main aim is to generate new business ideas and gather their forces to develop new products, services and companies. Triple Steelix main objectives are to:

- increase exchange of information between university, SMEs and large companies using the strong existing base of knowledge around the steel industry in the Bergslagen region;
- strengthen the ability of innovation through the development of new networks and meeting places; and
- stimulate entrepreneurship through the creation and demonstration of success stories.

# Organisation

- [SVERIGE](#)  
[Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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# Organisation

Fiber Optic Valley

Link: <http://fiberopticvalley.com/en/>

Stationsgatan 7  
Hudiksvall ,  
SE-824 43

Mission

The Fiber Optic Valley's vision is to be a fiber optics center of Europe by 2015 and a natural choice of location for any new business in the field. The Fiber Optic Valley will try to reach the goals by funding and participating in cutting-edge research projects - national and multilateral - and assist the growth of new and existing businesses through R&D and organisational support processes. As an actor in an extensive network, Fiber Optic Valley is building the foundation for an innovative climate for companies to develop ground breaking products and services based on fiber optics and broadband.

Activities

The core activities are to assist the growth of global and local companies. This is achieved through support in the form of research, training, financing, contacts and business development combined with an equally unique test environment for technical tests and behavioral science studies.

## Organisation

- [SVERIGE](#)  
[Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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## Organisation

Samarkand2015

Samarkand2015

Link: <http://www.samarkand2015.se/hem>

Fredsgatan 27 Box 832  
Ludvika,  
SE-771 28

Mission

Samarkand2015 was established in 2002 as a local development agency, active in the Ludvika and Smedjebacken municipality. The agency is owned by the

municipalities of Ludvika and Smedjebacken, the County Council of Dalarna and two of the largest companies in the region; the engineering company ABB and the steel company OVAKO. The region has one of world's highest concentration of engineers in the sector of high voltage transmission and the mission is to develop the region by providing an attractive labour market for qualified competences.

### Activities

Important activities are to provide education, a high level of public services and an attractive living environment for families. Most activities focus on regional development in triple helix collaboration (public actors, business and academia). Through collaboration, Samarkand2015 attempts to develop the potential to act, influence other actors, increase efficiency and reduce costs. The main business areas concerns competence development, development of higher education and strategic development. Samarkand2015 has a basic organisation, responsible for internal activities and support of a large number of projects.

## Organisation

- [SVERIGE](#)
  - [Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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## Organisation

Future Position X

Future Postion X

Link: <http://www.fpx.se/en>

Nobelvägen 2 Teknikparken  
Gävle,  
SE-801 33

### Mission

Future Position X (FPX) is a regionally prioritised development initiative and cluster with focus on the innovative use of Geographic Information Systems (GIS). FPX objective is, on behalf of its members' interests and ability, to act as a driving motor in the national centre of excellence in GIS and location-based services. FPX acts also as a platform for common development projects and resources, and manage the brand FPX.

### Activities

Future Position X is an independent arena for demonstration, development and

marketing of services based on geographic information and a meeting place for companies and organisations within the GIS-field. FPX works to develop the Region of Gävleborg into an international GIS-centre. FPX is working in four areas of activities:

- research - it collaborates with a research institute in order to stimulate applied research;
- laboratory - it has created a test lab for high-profile GIS solutions;
- markets - it provides market analysis of GIS services; and
- network - it engages and co-operates in networks, both with local, regional and international actors.

The target group is their members and other regional stakeholders, such as entrepreneurs, companies and universities.

Johan P Bång, Cluster Manager of FPX, was appointed Cluster Manager of the Year at the European Cluster Conference in Brussels in 2010.

## Organisation

- [SVERIGE](#)  
[Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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## Organisation

Karlstad University

Karlstad Universitet

Link: <http://www.kau.se/en>

KARLSTADS UNIVERSITET

Karlstad,  
SE-651 88

Mission

Karlstad University was founded in 1999, when the former Karlstad University College received university status. It is one of the youngest universities in Sweden. The university had previously been a university college. The main aim of Karlstad University is to provide broad-based, multidisciplinary programmes for students in Sweden and visiting students from abroad, while developing strong areas of research.

The objective is to contribute to the development of knowledge at international, regional and individual levels. There is a high level of openness, creativity and

multidisciplinarity, which has contributed to a significant level of academic achievement. There is a goal to become one of the best universities in Europe with regard to external cooperation.

## Activities

The university provides education and research in five faculties; Arts and Education, Economic Sciences, Communication and IT, Social and Life Sciences, Technology and Science and Teacher Education. All education and research is underpinned by a close dialogue with private companies and public organisations.

Research has grown rapidly in recent years. To meet future demands for sustainable development, much research at the university is multidisciplinary, and the goal is to further develop its leading research fields, notably communication and services, pulp, paper and surface treatment, printing technology, packaging, environment, tool materials, education, working-life science, tourism and leisure, and gender relations.

Cooperating with companies, authorities and organisations is a major task for the University. This cooperation is of mutual benefit and is part of the exchange of knowledge and experience that enriches both education and research. Through open dialogue, Karlstad University also contributes to regional development and at the same time is the region's link with the international academic community. The university helps to ensure that innovations are disseminated in the community and that research results become commercial successes.

## Organisation

- [SVERIGE](#)  
[Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
- 
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## Organisation

The Packaging Arena

The Packaging Arena

Link: <http://www.packagingarena.com/start/>

Västra Torggatan 11  
Karlstad,  
SE-652 25

### Mission

The Packaging Arena is a regionally prioritised development initiative and a



business network. The objective is to create the most innovative environment for consumer-driven packaging development in Europe.

## Activities

The activities of The Packaging Arena work as a complement to the packaging industry and help their clients in the development process. In practice this means:

- advice and process support - helping companies to produce innovative and user-friendly packaging solutions;
- consumer tests - testing the selling capacity of packaging and the choices that consumer make, securing product launches; and
- innovation support - developing new models and methods for involving users in product development, in order to strengthen both packaging and businesses.

The members of the Packaging Arena are companies from the whole chain of the development process, including material producers, printers, designers, retailers and researchers. The target group is actors within the packaging industry and development.

## Organisation

- [SVERIGE](#)  
[Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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## Organisation

The Paper Province (TPP)

Link: <http://www.paperprovince.com/en/>

Axel Johnsons väg 6  
Karlstad ,  
SE-652 21

### Mission

In 1999, The Paper Province (TPP) was established as a cooperative project within the municipality of Karlstad in order to support the development of the stagnating pulp and paper sector. In 2003, TPP was reorganised into an economic association. Today, TPP is a cluster organisation owned and run by more than 90 member companies in Värmland and the surrounding area. The companies, ranging from global giants to local suppliers represent the whole value chain and associated service sector and are active in more than 100 countries.

## Activities

To provide meeting places between different actors, various network activities are being arranged, e.g. breakfast seminars, monthly after-work pubs, a yearly Paper Makers' Night Conference and study visits. To secure access to relevant competences, many initiatives have been taken to attract students to various programmes and to develop courses according to company specifications, often in close cooperation with Karlstad University and Karlstad Municipality.

Over time, the activities of TPP have broadened. In 2004, the Packaging Greenhouse (TPG) was established as an independent test laboratory for paper and engineering products and services. TPG is a private company, owned to 100% by TPP. TPP has also become an important part in many regional development projects, with co-funding from the European Regional Development Fund.

Between 2003 and 2009, the turnover of TPP increased from about €0.25m to €0.85m. Part of the funding is made up by yearly membership fees. Since 2007, the share of EU-funding has increased to approximately 50% of turnover. Approximately six persons are working at TPP. TPP has become a well known international cluster organisation. External surveys show that The Paper Province's work leads to new products and services, increased sales and more jobs. In 2007, TPP was appointed one of the "Top EU Clusters in High-Tech Regions".

## Organisation

- [SVERIGE](#)  
[Norra Mellansverige](#)
  - Region Norra Mellansverige
  - NUTS Code SE31
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## Organisation

Region Gävleborg

Link: <http://www.regiongavleborg.se/2.29cc6e10112f09083138000657.html>

Box 834  
Gävle,  
SE - 801 30

### Mission

Region Gävleborg was established in January 2007. It is a co-operative body, which includes the region's ten municipalities: Bollnäs, Gävle, Hudiksvall, Hofors, Ljusdal, Nordanstig, Ockelbo, Ovanåker, Sandviken and Söderhamn. In addition, the region includes the northern part of Orsa Finnmark, and the Municipality of Ljusdal. The co-operative body also incorporates the County Administrative Board of Gävleborg.

Region Gävleborg's mission is to promote consensus, initiate actions, and coordinate local and regional efforts. The mission is also to coordinate regional development on the basis of the regional development plan. The region's motto is "Gävleborg Region - a region of opportunities" and the main objective is that by 2013 Gävleborg will have 280,000 inhabitants.

## Activities

Region Gävleborg has the task of responding to regional development issues in the County. This task includes:

- drawing up programmes for the County's development, as well as coordinating and cooperating with other actors on the implementation of the programme;
- decide on the use of the governmental project funds for regional development; and
- develop the regional infrastructure plan.

The Region of Gävleborg County works with regional development on the basis of a number of other areas of activities, such as welfare, regional growth and competitiveness, R&D, Environment and Sustainable Development, learning and labour market issues. The Regional Development Plan sets the direction of activities during the period 2009-2013.

One important action strategy in The Regional Development Plan is to create dynamic businesses and the overall goal is to facilitate the development of an attractive and competitive region based on sustainable growth. Region Gävleborg plans to enhance growth, entrepreneurship and innovations through a number of activities during the period 2009-2013. Examples of prioritised activities are:

- to develop effective systems and structures around capital issues;
- to develop a support system for energy- and environment technologies;
- to implement a major strategic initiative on tourism related events. This action will be carried out through broad collaboration between business and society;
- to focus on strengthening the tourism industry and consider how the transport systems can support this in a sustainable way;
- to encourage greater interaction between business, research and educational institutions; and
- to support sector-wide developments of the creative industries.

A new innovation strategy will also be elaborated on the basis of the regional development plan. The purpose of the innovation strategy is to identify the strengths of the region's innovation system. Gävleborg plans to develop an industrial policy programme and a strategy for tourism development.

## Organisation

- [SVERIGE](#)
- [Norra Mellansverige](#)
- Region Norra Mellansverige

- NUTS Code SE31
- 
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## Organisation

Regional Cooperation Council of Dalarna

Region Dalarna

Link: <http://www.regiondalarna.se/sv/Verksamhet/Engelska/About-us1/>

Myntgatan 2

Falun ,

SE - 791 51

### Mission

The Regional Cooperation Council of Dalarna primary mission is to promote and co-ordinate regional development in Dalarna as effectively as possible. This includes stimulation of the region's assets and opportunities, and promoting sustainable regional development in a number of different areas that are important for growth and employment in the region. The Council works closely with other organisations to promote Dalarna.

### Activities

The Regional Cooperation Council of Dalarna was established by Dalarna County Council and the 15 local authorities in 2003. These bodies appoint the 25 members and deputies that make up the executive committee that is the decision-making body for the Regional Cooperation Council.

The Regional Cooperation Council of Dalarna's main task in the next few years is to implement the regional development programme, "The Dala Strategy". The Dala Strategy is effectively a policy document that dictates the activities and decision-making of the Regional Cooperation Council of Dalarna. The Dala Strategy identifies four challenges for the region:

- globalisation;
- knowledge provision;
- environment realignment; and
- Dalarna specific challenges.

The choices and goals included in this strategy are based on these challenges. The overall vision of the strategy is "The future of Dalarna is in our own hands. In Dalarna tradition and innovation meet, and everyone may grow here. Dalarna is driven by passion, will and creativity. Dalarna grows and develops in an active exchange with the world around it".

The regional development work is pursued in close co-operation with local authorities in Dalarna and other regional organisations. The Regional Council is offering knowledge, inspiration, networks, co-ordination and financial support. The council is active in several areas, including:

- regional enterprise, e.g. development of cluster and innovation systems;
- education, training and skills provision;
- developing methods for co-ordinating regional and local authority development work; and
- resolving on the allocation of government project funds for regional development.

In the development area of growth and business development Region Dalarna operates in order to promote business development and growth. The objective of the operations is to provide the best possible conditions for companies to develop and to improve the County's competitiveness. Region Dalarna intends also to stimulate growth, increase entrepreneurship and start-ups of new companies. Interaction and co-operation with local and regional actors is also a key activity in the work of strengthening the region's innovative environments and clusters. Region Dalarna also supports special efforts to promote SMEs companies through co-financing.

## Organisation

- [SVERIGE](#)  
[Norra Mellansverige](#)
- Region Norra Mellansverige
- NUTS Code SE31

## Organisation

Region Värmland

Link: <http://www.regionvarmland.se/english-summary>

Box 1022  
Karlstad,  
SE - 651 15

Mission

Region Värmland is an organisation formed by the county council and its 16 municipalities, with a mission to stimulate and co-ordinate regional development, growth issues, culture and adult education in Värmland.

The organisation was formed in 2001 as a municipal association. In 2007 the organisation was changed, as the government decided that every county could formed a co-operative body and to take over responsibilities from the county administrative boards. Since then (2007), Region Värmland is responsible for infrastructure planning in the region, including rail, road, shipping and aviation.

Activities

Region Värmland's main task is to establish conditions for, flourishing trade and industry, a rich cultural life, and the opportunity for the inhabitants of Värmland to live a good life. Region Värmland is responsible for promoting growth and long-term regional development. Region Värmland therefore works with a large range of issues. Region Värmland operates in various areas, such as infrastructure, economy and tourism and education. Examples of the activities are:

- creating strategies for the development of the region;
- marketing Region Värmland as a location for companies to establish, both nationally and internationally;
- working with international issues in order to promote co-operation;
- follow the EU's policies and strive towards having a positive influence on development for Värmland; and
- ensure that regional development leads to environmentally sustainable growth, and monitor the development in the region.

Region Värmland is also responsible for five colleges for adult education and several regional resource centres, including Visit Värmland, the Regional Resource Centre for Dance and the Regional Energy Agency. Region Värmland focuses on creating appropriate conditions for growth in the county.

Region Värmland is in charge for elaboration and co-ordination of the regional development programme. The programme specifies measures and strategies in different strategy areas. In the strategy area of innovative environments there are a number of prioritised actions, divided into three sections:

- innovative entrepreneurs;
- innovative clusters; and
- innovation for sustainable growth.

In general, Region Värmland is working to become better at making the most of people's innovations and ideas, and to promote entrepreneurship in order to bring new and growing companies to the region. Region Värmland works to create renewal and greater competitiveness for Värmland companies.

Region Värmland makes large investments in industry-linked research. Region Värmland is placing a major emphasis on strong industries, as these make the region more attractive on an international level and entice new companies and investments in the region. Also, it facilitates marketing and internationalisation of local companies.

## Appendix D Statistical data

| Indicator                                   | Norra Mellansverige (SE31) | Norra Mellansverige (SE31) | Norra Mellansverige (SE31) | EU27             |
|---|----------------------------|----------------------------|----------------------------|------------------|
|   | 2000 or around             | Previous year              | Most recent                | Most recent      |
| <b>GDP per capita (PPP)</b>                 | 21000<br>2000              | 26600<br>2007              | 26500<br>2008              | 25100<br>2008    |
| <b>Change in GDP per capita</b>             | 3.32<br>2000-03            | 4.54<br>2006-07            | 2.77<br>2005-08            | 3.73<br>2005-08  |
| <b>Unemployment rate</b>                    | 5.95<br>2000-03            | 5.4<br>2006-09             | 5.525<br>2007-10           | 6.98<br>2007-10  |
| <b>Change in unemployment ratee</b>         | -1.58<br>2000-03           | -0.02<br>2006-09           | -0.13<br>2007-10           | -0.30<br>2007-10 |
| <b>Tertiary education</b>                   | 0.25<br>2000               | 0.28<br>2009               | 0.29<br>2010               | 0.30<br>2010     |
| <b>Government R&amp;D expenditure</b>       | 0.08<br>1999               | 0.09<br>2007               | 0.09<br>2007               | 0.24<br>2008     |
| <b>Non-R&amp;D innovation exp.</b>          | --<br>--                   | --<br>--                   | --<br>--                   | 0.41<br>2006     |
| <b>Patents per mln popoulation</b>          | 177.6<br>2000              | 116.5<br>2005              | 142.7<br>2006              | 115.1<br>2006    |
| <b>Business R&amp;D expenditure</b>         | 1.33<br>2001               | 1.02<br>2007               | 1.02<br>2007               | 1.21<br>2008     |
| <b>Higher education R&amp;D expenditure</b> | 0.16<br>2003               | 0.18<br>2007               | 0.18<br>2007               | 0.44<br>2008     |

Source: Eurostat and Community Innovation Survey

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