

Supporting the Contribution of Higher Education
Institutions to Regional Development

Self-evaluation of the Värmland region, Sweden

18th of January 2006



Supporting the Contribution of Higher Education Institutions to regional Development

Self-evaluation of the Värmland Region, Sweden



Content

FIGURES.....	4
TABLES.....	4
DIAGRAMS.....	5
ACRONYMES.....	5
AGENCIES ETC.....	6
APPENDICIES.....	6
SUMMARY.....	7
0 INTRODUCTION.....	12
0.1 The OECD Project	12
0.2 The Värmland Region and its relation with Norway	12
0.3 Karlstad University	12
0.4 The history of Karlstad University	13
0.5 Vision 2015	13
0.6 Re-organization	13
0.7 The re-organization of national defence	13
0.8 Writing this report	14
1 REGIONAL OVERVIEW.....	15
1.1 An historical and economic/geographic backdrop	15
1.2 The geographical situation	16
1.3 The demographic situation	23
1.4 The economic and social base	28
1.5 Governance structure	41
2 CHARACTERISTICS OF THE HIGHER EDUCATION SYSTEM.....	46
2.1 Overview of the national system of higher education	46
2.2 Regional perspectives on national policy	51
2.3 The regional dimension of higher education	52
3 THE CONTRIBUTION OF RESEARCH TO REGIONAL DEVELOPMENT AND GROWTH.....	53
3.1 National conditions for supporting research and innovation	53
3.2 National stakeholders in research and innovation	55
3.3 Regional needs and demands	57
3.4 Karlstad University's research strategy	58
3.5 Interfaces facilitating regional knowledge exploitation and transfer	59
3.6 Results	65
3.7 Conclusion	65
4 CONTRIBUTION OF TEACHING AND LEARNING TO LABOUR MARKET AND SKILLS.....	68
4.1 Karlstad University's Mission	68
4.2 Regional perspectives on the exchange of experience and relation to reality ... 70	70
4.3 Student recruitment and the regional labour market	71
4.4 Contributions to life-long learning, and further professional development and training	72
4.5 New forms of educational opportunities	73
4.6 Reinforcing the regional educational system	73
4.7 The project "Wanted: Technologists"	74

4.8	Results	74
4.9	Conclusion	76
5	CONTRIBUTION TO SOCIAL, CULTURAL, AND ENVIRONMENTAL DEVELOPMENT	79
5.1	Social development	79
5.2	Cultural development	80
5.3	Sustainable development	83
5.4	The Gender perspective	84
5.5	Conclusion	85
6	CONTRIBUTIONS TO REGIONAL COOPERATION	87
6.1	Mechanisms supporting the contribution of higher education to regional development	87
6.2	Support to regional dialogue and joint marketing initiatives	93
6.3	Evaluation and Mapping of the impact of higher education on the region	95
6.4	Karlstad University's regional commitment	96
6.5	Management of human and financial resources	97
6.6	Creating a new organizational culture	98
6.7	Interpersonal Contacts – workshop on cooperation	99
6.8	Imagine Värmland Providing Equal Opportunities to All – workshop on gender analysis	101
6.9	Värmland is not Enough – workshop on regional enlargement	101
7	CONCLUSIONS – BEYOND SELF-EVALUATION	105
7.1	The process	105
7.2	Further steps	108

Figures

Figure 1.1 Värmland in Europe	17
Figure 1.2 The Nordic Triangle	18
Figure 1.3 Värmland in Scandinavia	19
Figure 3.1 Supporting Entrepreneurship and Business Development	59

Tables

Table 1.1 Population and demographic development 1990-2004 for the municipalities in the county of Värmland (source: Statistics Sweden)	20
Table 1.2 Population size in the largest local labour market regions in Sweden (source: Statistics Sweden, whose current division into labour market regions has been used)	21
Table 1.3 Age structure in the Karlstad region, the County of Värmland, and Sweden – percentages 1984, 1994 and 2004 (source: Statistics Sweden)	24
Table 1.4 Social-security payments in the Karlstad region, the county of Värmland, and Sweden in 2003 (source: Statistics Sweden)	25
Table 1.5 People proceeding to tertiary education and educational attainment in municipalities in Värmland, the County of Värmland, and Sweden (source: Statistics Sweden)	26
Table 1.6 The economic structure in the Karlstad region, the County of Värmland, and Sweden in 2003 (source: Statistics Sweden, Regional Labour Market Statistics)	28
Table 1.7 Labour-intensive, capital-intensive, and knowledge-intensive sectors in the Karlstad region, the County of Värmland, and Sweden in 2002; share of employees in % (based on Regional Labour Market Statistics by Statistics Sweden)	28
Table 1.8 Man-years and expenses for R&D in the business sectors of the County of Värmland and Sweden (source: Statistics Sweden)	30
Table 1.9 Occupational distributions according to occupational area in the Karlstad region, the County of Värmland, and Sweden in 2003 (source: Statistics Sweden, the Occupational Register)	33
Table 1.10 Unemployment and persons in labour market programmes in % of the labour pool in the Karlstad region, the County of Värmland, and Sweden in March 2005 (source: the Swedish National Labour Market Administration)	36
Table 1.11 Goal and effect indicators on the top level of the programme (Sustainable Growth in Värmland)	38

Diagrams

Diagram 1.1 Demographic developments in Sweden, Värmland, and the Karlstad region (source: Statistics Sweden)	20
Diagram 1.2 Intra- and international migration to and from the county of Värmland (source: Statistics Sweden)	23
Diagram 1.3 Students and employees at Karlstad University and the former Karlstad University College (Data for employees from before 1997 has not been included. Sources: Karlstad University and the National Agency for Higher Education.)	27
Diagram 1.4 New businesses in the County of Värmland and in Sweden (source: The Swedish Institute for Growth Policy Studies)	31
Diagram 1.5 Employment levels for people aged 20-64 in the Karlstad region, the County of Värmland, and Sweden (source: Statistics Sweden, labour statistics based on administrative sources; the definition of a gainfully employed person was changed in 1993)	34
Diagram 1.6 Unemployment, as defined by the Swedish National Labour Market Administration, in the County of Värmland and Sweden (source: the Swedish National Labour Market Administration; the labour pool is here defined as the population of working age, i.e. 16-64 years)	35
Diagram 1.7 Gross Regional Product per employee (source: Statistics Sweden)	37
Diagram 1.8 Equality index for municipalities in Värmland	39

Acronyms

Cerut,	Centrum för Forskning inom Regional utveckling 'the Center for Research on Regional Development'
CTF	Centrum för Tjänsteforskning 'the Service Research Center'
HSV	Högskoleverket 'National Agency for Higher Education'
HumanIT	Center for research on the human aspects of IT
IKU	'Institute for Quality and Development in the Social Services'
NÄS	Nätverket för älvsäkerhet 'Network for River Safety'
RTP	Regionalt TillväxtProgram 'Regional Growth Programme'
RUC	'Regional Development Centre for Schools'
TEN	The Trans European Network
TPP	The Paper Province
TPA	The Packaging Arena
UNISKA	Universitetsalliansen inre Skandinavien

Agencies etc

Nutek	The Swedish Agency for Economic and Regional Growth
KK-Stiftelsen	Stiftelsen för kunskap och kompetensutveckling 'the Knowledge Foundation'
VINNOVA	Verket för innovationssystem 'the Swedish Agency for Innovation Systems'
Vetenskapsrådet	the Swedish Research Council
MISTRA	'Foundation for Strategic Environmental Research'
Jämställdhetscentrum	'Centre for Gender Studies'

Appendices

- 1 Sammanfattning av Work Shops (In Swedish)
- 2 Cluster Initiatives
- 3 A summary of the report sent to the Swedish government in connection to the restructuring of the Swedish defence 2005-10-14.
- 4 Spinn offs from the incubator Inova until 2005 (In Swedish)
- 5 Financial Contribution to Regional Development in Värmland (In Swedish)
- 6 Education Cooperation between Karlstad University and the Municipalities (In Swedish)

Summary

Does it make a difference to the development of a region if it has a university? Do higher education institutions contribute to regional growth and development and if so in what way? Do we have effective systems for co-operation or do we simply enjoy each other's company? These are some of the aspects highlighted in this self-evaluation report, which focuses on the Värmland region in central Sweden. The self-evaluation is part of a project initiated by the IMHE (Institutional Management in Higher Education), an OECD organisation, in which regions all over the world are participating.

The main reason for participating is a joint interest on the part of Karlstad University and regional stakeholders of Värmland in contributing to regional, sustainable growth and the enhancement of living conditions in the region. The University is still very young and has the potential to devise unorthodox ways of co-operating with stakeholders in the community. In its vision it states that co-operation with the community and the contribution to development and the innovation process are major goals. Värmland is a region which is proud of its history and culture but which at the same time is faced with slow growth and development, a high level of unemployment, and a less than average level of education. These issues were also considered in a previous document, the regional growth programme Sustainable Growth in Värmland, 2004- 2007. All stakeholders are very interested in discovering – in a systematic way – how the tools for regional development in connection with higher education work and, most importantly, having an opportunity to exchange ideas and experiences with regions world wide.

This project has been directed by a steering committee with all interested parties represented:

Per Eiritz (Chair)	Metso Paper
Bengt Möller	TietoEnator AB
Christina Ullenius	Karlstad University
Malin Ryttberg	Ministry of Education and Culture
Per Eriksson	VINNOVA
Sune Berger	Karlstad University
Sture Hermansson	County Administrative Board of Värmland
Anna Sandborgh	Municipality of Karlstad
Christer Svahn	Region Värmland

The report follows the guidelines laid down by OECD. However, the steering committee added three perspectives to the self-evaluation: arenas for interaction – “interaction between people - a precondition for growth”; gender perspectives – “imagine Värmland offering equal opportunities to all”; and regional enlargement and alliances – “Värmland is not enough!?”. Each of these aspects was explored in a workshop.

Värmland is located in central Sweden on the border with Norway, approximately 300 kilometres west of Stockholm, and 250 kilometres north of Gothenburg. It has 274 000 inhabitants and the regional capital is Karlstad, with 80 000 inhabitants. Major industries are pulp & paper, steel and trade (including tourism and cultural events).

The Värmland region is equivalent to the geographical county of Värmland. However, there are strong links with areas surrounding the county and with Norway. The trade with Norway is important and a number of people from Värmland commute to work in Norway. In this context, the Nordic Triangle has been suggested as a form of “growth corridor” between Oslo and Stockholm (the triangle is formed by Stockholm – Oslo – Copenhagen).

Karlstad University became a full status university in 1999, after 20 years as a university college and before that a teacher's college. The University offers a wide range of undergraduate education with some emphasis on vocational training, such as teaching, nursing, engineering and business studies. Its research areas are forest, environment and materials, the communication and service society, learning at school and work, regional identity and welfare, gender in society and culture and creative art. The University has 10 500 students and 1 000 employees.

The self-evaluation report describes the national framework, in which the University and the regional stakeholders form their action plans to enhance the living conditions and regional development in Värmland. National bodies have also participated in the work involved in writing this report. Sweden may have a rather complex system for governing regional development issues, promoting innovation processes, and encouraging co-operation between higher education institutions and industry and commerce.

Karlstad University and the region of Värmland make use of the tools for research and development offered by national and European agencies and foundations and they have long experience of working together in these fields. For instance, the University and the region have recently developed a professional system to support the transfer of knowledge from university to industry and commerce. One important challenge for the university management, however, is to balance regional needs and demands with its role as a member of an international and national research community, and, not least, to convey an understanding of its national and international role to its regional stakeholders.

The role of the university is to contribute to the promotion of higher education at both a regional and national level. The national goal is that 50% of young people should transfer from upper secondary school to university within three years of leaving school (i.e. before the age of 25). The national figure is at present 43% and the average for Värmland is 40%. There are substantial differences between women and men. Young men from small villages in Värmland tend to reject higher education. Women dominate higher education in general, though there are areas where the opposite conditions obtain.

This self-evaluation report forms a basis for further actions to improve life in Värmland. The workshops that complemented the work on the report have produced a number of good ideas and highlighted important aspects of regional development. One of the more interesting conclusions was from the gender workshop. It showed that Värmland has much work to do in respect of equal opportunities for men and women – not only from an ethical point of view, but as a pathway to success.

The ideas and suggestions put forward during this self-evaluation process will be compiled, after an assessment and report by the OECD, and further processed by the regional stakeholders. This prioritization can be part of the update of the activities related to the Regional Growth Programme, possibly with new resources available as a result of the restructuring of the Swedish defence forces. We now have sufficient information on which to base our actions. However, a broad understanding of the problems and opportunities, of the role of the different stakeholders, and of their ability to take action is required for the successful development of Värmland.

Below is a summary of the SWOT analysis included in the report:

SWOT analysis

Strengths

- There are existing clusters and cluster organizations in the forest industry and in IT. (Ch. 1.4.11)
- A young and flexible and innovative university. (Ch 0.3)
- Some internationally competitive research environments have been developed (e.g. the Service Research Center). (Ch. 3.5.3)
- The business sector and public stakeholders are involved in the development of research at Karlstad University. This is reflected, among other things, in the profile areas (e.g. nursing and public health in cooperation with the County Council of Värmland) and in the existing research centres. (Ch. 3.4)
- Support systems have been professionalized, and research continues to be developed in a spirit of openness. (Ch. 3.5.2)
- The university is a campus university (with the exception for the Ingesund College of Music in Arvika). (Ch. 03, 04)
- The university is easily accessed and praised for its surroundings and atmosphere. (Work Shop)
- There is a reciprocally rewarding cooperation with public stakeholders in the social and cultural sectors. (Ch. 5.2.5)
- The formal meetings are propelled by optimism for the future and the contacts established make informal meetings possible. The Regional Growth Programme and Karlstad University contribute to the growing number of meeting places with an atmosphere of good-will and open minds. (RTP and Ch. 5.2.5)
- The small city has many advantages: strong networks, clusters, and many unexpected meetings give rise to new relations and constellations. (Work Shop)
- The strength of the university's contribution of education to the labour market is its balanced and well-planned choice of programmes and courses in relation to the needs of the region for teacher education and health care. (Ch. 4.2)
- Resources for regional development are on the increase. (Ch. 6.5)
- Some efficient structures for regional cooperation exists (Ch. 1.4.1)
- There is great mobility between Norway and Sweden. (Work Shop)

Weaknesses

- Weak national management by objectives and follow-up of the contribution of research to economic growth. (Work Shop)
- Weak confidence on a national level in the ability of HEI's to create support structures and profiles. (Work Shop)
- The university is relatively unknown and does not belong to the establishment as far as research funding is concerned. (Work Shop)
- Research contents and some leaders of research are unknown in the region, which means that some research areas receive little regional funding. (Work Shop)
- Awareness and acceptance of support systems is still weak in some research groups. The coordination of different stakeholders and initiatives concerning entrepreneurship in the region is weak. (Work Shop)
- The system to involve small and medium-sized companies has room for improvement. (Work Shop)
- The access to venture capital on the regional level is limited. (Work Shop)

- It is difficult to recruit students to some programmes. (Data from HSV)
- The regional labour market does not have, or fails to see, a need for all graduates. However, the university contributes to the national market. (Work Shop)
- Established trades do not employ new people. There is little renewal of industrial life, which means no demand for engineers and people with doctoral degrees. (Work Shop)
- The level of education in industry is low by tradition, which means that contact with Karlstad University seems distant and undesirable. Increasingly, foreign owners have taken over local industry and moved development resources abroad. Few research and development departments in companies mean little contact with the university and a low demand for our services. Manufacturing and development departments are separated and thus run the risk of losing competitiveness. (Work Shop)
- The role of the Karlstad area in a national perspective is unclear. This makes us uncertain about our role and strategies. (Work Shop)
- The region lacks a strategy shared by other regions. (Work Shop)
- Regional cooperation as a whole in the technical field needs improving. (Work Shop)
- The university's location on the outskirts of Karlstad is perceived by many as a serious drawback because it makes the university less accessible. (Work Shop)
- The same persons, "The Club", frequent the formal meetings and there is a fixed hierarchy. Despite of this, there is a lack of knowledge regarding the others' situations and possibilities, which means that the assumed unanimity might be imaginary. (Work Shop)
- The informal meetings take time, they are gender-structured, and the inspiring environment at the university is not utilized enough. (Work Shop)
- Discussions of regional expansion tend mostly to focus on *larger communities* and on the need for *one* geographical direction, namely East, or South-West. (Work Shop)
- Värmland is one of the most segregated regions in Sweden in terms of gender, according to the Statistics Sweden equality index, which is based on a number of gender-specific variables.

Opportunities

- A common agenda for research contents and funding may be created, as well as joint resources for e.g. funding from the EU. (Ch. 6.5.1)
- A new organization and new management processes at Karlstad University offer an opportunity for ensuring broad understanding for the regional agenda within the university. (Ch. 6.6)
- Established research can be put to even better use for the region. (Work Shop)
- There is the potential for developing common profile areas (e.g. data security or working life science). (3.4)
- Cooperation with other HEIs. (VUS, Penta Plus)
- The ability to respond faster than other regions to changes in the labour market and educational demands. This also applies to further training and flexible learning. (Work Shop)
- We must catch the attention of the uninterested young men and turn them into well trained engineers on the global labour market. (Work Shop)
- We must be strong globally in certain branches to be regionally strong. (Work Shop)
- Our cultural-geographical heritage is an asset as well as an impediment. (Work Shop)
- Develop platforms linked to strong environments at Karlstad University in some industrially viable areas. The considerable output of graduates on the labour market is a great potential for the region. (Growth Analysis Värmland).
- Increasing cooperation with Norway. (Work Shop)

- Karlstad Municipality has a strategic plan to expand the city to the east, west, and in the centre. Karlstad University is located in the eastern node. Even today, apartment buildings are erected in the campus area. (Work Shop)
- The generation shift in industry and public services will improve the chances of achieving a better balance of men and women in leading positions. (Work Shop)
- The planned sports hall opens possibilities for further cooperation on cultural and sporting events, as well as joint ventures with industry and commerce. (Ch. 5.1)
- Prospects are good for developing formal and informal meeting places in line with the proposals of the workshop on this theme (appendix 1).
- Special meeting places and forums should be established for doctoral students. (Work Shop)
- A higher degree of awareness of gender inequalities would be a good starting-point for developing and implementing a plan of action with regard to gender segregation (proposal from the workshop on this issue – appendix 1).

Threats

- The limited resources in research funding affect priorities, i.e. research at Karlstad University is not developed further at all or not with the interests of the region in mind. (Work Shop)
- Too many resources are used for administration and funding issues. (Work Shop)
- Support systems dependent on individuals risk the loss of key persons unless permanent structures are created. (Work Shop)
- The administrative survey concerning regional divisions and regional enlargement (“Ansvarskommittén”) that is currently in progress may lead to significant changes of administrative structures (which may also be considered an opportunity). (Work Shop)
- Boys, especially in non-urban areas, lack interest in higher education. The trend that fewer young men apply to Karlstad University is growing. (Data from HSV)
- The continuing lack of interest in technology and the natural sciences poses a serious threat to education and the technology-based industry in the region. (Work Shop)
- The research groups at Karlstad University who create their own platforms and who build on their present knowledge instead of present and future regional need. (It needs to be said, though, that there is an understanding of the need for profiling nationally and internationally.) (Work Shop)
- Resistance to changing study programmes. (Work Shop)
- There is a risk that development models designed for countries, regions, and universities far bigger than Sweden, Värmland, and Karlstad University are introduced and reproduced uncritically here. (Work Shop)
- The lack of interest in natural sciences and technology constitutes a threat to the future of environmental work. (Work Shop)
- Strong male power structures and traditional decision-making inhibit creativity and innovative ability. (Work Shop)

0 INTRODUCTION

0.1 The OECD Project

The invitation from the OECD to participate in an international comparative study of the contribution of universities to regional development is of interest to business, organizations, and authorities in Värmland, as well as to Karlstad University. The region's application for participation in the OECD project Supporting the Contribution of Higher Education Institutions to Regional Development was accepted together with applications from twelve other regions. The project involves a comparison of models for cooperation, with the aim of successful regional development, between European, American, and Asian universities and their regions.

Why do Karlstad University and Värmland wish to participate in the project? Considering that the university in Karlstad is still a young and growing organization, there are good opportunities to push for close and effective cooperation with the region it forms part of. For different reasons, this region has lost some of its growth potential in the past ten years. The University Board has adopted a policy document that is very ambitious as regards cooperation with the surrounding world, and Karlstad University is meant to become one of the outstanding European universities in this respect. Since the birth of the university, quite substantial resources have been invested into building a flexible and sensitive organization for cooperation. The Board's intention has been that the university contribute to knowledge transfer and participate actively in the innovation systems of the region. It will of course be very interesting to compare this work with the results of similar efforts in different parts of the world. The background to the university's and the region's interest in the project is thus the university's and the regional stakeholders' common interest in contributing, in different ways but jointly, to the development of the region. Another reason for the region's participation is to initiate a learning process with regard to the university's impact on the development of Värmland, and vice versa, and to produce, in conjunction with international experts, a plan of action for how the region and the university can be developed further.

0.2 The Värmland Region and its relation with Norway

This self-evaluation has been limited to Värmland, but must take account of other regions as well. The university defines its region by stating that the university's region of cooperation is determined by the partners' geographical location. If there is a partner in Norway, then that part of the world is part of our region. Värmland borders on southern Norway. Historically, relations in the border region have been tight, be it in the form of cooperation, conflicts, or labour migration. Recently, the region, in conjunction with many partners, has worked out a so-called regional growth programme, where one focus area for growth-promoting efforts is linked to the opportunities in the so-called growth corridor Oslo-Karlstad-Stockholm. The innovation system thus affects a geographical area larger than Värmland.

0.3 Karlstad University

Karlstad University, founded in 1999, is a young university. Its background at the time was mixed, as it emerged out of Karlstad University College, with traditions from the academic world, and a teacher training college and a university college in health science, both focussing on professional education. Today, there are approximately 10,500 students enrolled at the university, which also comprises a college of music. Courses offered within the teacher education and in social sciences are especially numerous, though the development of the natural sciences and technology is a priority. Research is especially strong in chemical engineering, paper technology, surface treatment, packaging, services, and communication. Research also takes place in

pedagogy, regional development, welfare, and creative arts, as well as in the subjects of e.g. theoretical physics, mathematics, and psychology.

0.4 The history of Karlstad University

Karlstad University has its roots in teacher's college established in the middle of the 19th century, a nursing school from the beginning of the 20th century, and a branch of Göteborg University that opened in Karlstad in 1967. In 1977, Karlstad University College was founded and became an autonomous organization within the Swedish national system for higher education. The college grew and broadened its choice of educations during the 1980s and '90s. At the same time, research and development work at the college advanced and, as a consequence, so did the cooperation with the businesses, authorities, and service institutions of the region. Following an application to the government in 1997 and the assessment and acceptance by an expert group from the National Agency for Higher Education, Karlstad University College was awarded the status of a full university on 1 January 1999. This included the right to examine doctoral students as well as increased resources for research and research education. In 2002, the Ingesund College of Music in Arvika was integrated into the university.

0.5 Vision 2015

In November 2004, the University Board adopted a vision document that aimed at the year 2015. This vision has subsequently led to strategic plans and goals that are used in connection with budgeting and planning. Vision 2015 offers a new view of the future university, where multi-disciplinarity, openness, and the ability to think in novel ways are the key concepts. Democratic principles, a commitment to equality, and a respect for diversity are the cornerstones of the university. Openness, respect, and a sense of community characterize the work environment. The objective is to contribute to the socially, ecologically, and economically sustainable development of society. Intellectual and academic freedom are of prime importance to the university, whose task it is to create, cultivate, integrate, disseminate, and apply knowledge. Together with society, the university develops knowledge that will change the world and challenges limits and structures through innovative thinking. Karlstad University dares to blaze new trails.

More detailed goals are listed in five areas: exploring the unknown; creating a broad knowledge base for the society of the future; openness and close cooperation with society at large; education and research of high scientific quality and social relevance; and centres of excellence with international renown.

0.6 Re-organization

Until now, the line organization of Karlstad University comprised ten divisions that were assigned the tasks of education and research. This organization will be replaced by four faculties with a clearer management structure on 1 January 2006. Responsibility for cooperation with the society at large will then be assumed by the faculties and the disciplines subsumed under them. Cooperation with the outside world will continue to be strategically important, which is why the Director of University Outreach is part of the executive team of the university.

0.7 The re-organization of national defence

In 2004, the region has experienced the effects of the structural changes in the Swedish Armed Forces in that an important regiment has been moved from the region. In order to compensate for this, the national government has relocated a number of central boards and agencies to the region and indicated that it will invest relatively large amounts of money into growth-promoting activities, in accordance with suggestions from local state authorities. The university is directly involved in the preparation of these suggestions, and there has been a focus on certain important

branches of industry: metal, information technology, and packaging. Other foci are the demands for competence and the preconditions for growth, or the “geography of growth”. This work is to be presented to the government by 30 December 2005.

0.8 Writing this report

Work in the project has been directed by a steering committee who has received materials from a working group. The organization of the project has been in accordance with the guidelines provided in the aide-memoire for this project. All interested parties have been represented in the steering committee: the Ministry of Education, VINNOVA (the Swedish Agency for Innovation Systems), the County Administrative Board, Region Värmland, Karlstad Municipality, industry and commerce (chair), and the university (regional coordinator). The texts in this report have resulted from the commitment of the different parties and are written by these parties’ representatives in the working group of the project. Important foundations for our work have been the Regional Growth Programme and the evaluation, by the National Agency for Higher Education in 2004, of the university’s cooperation with the surrounding world. The conclusions drawn in the different sections have been formulated on the basis of the presentations and processes in the working group and the decisions taken in the steering committee. Three workshops in as many subject areas have also been added to the project. These involve explorations of areas that are strategically important for regional development and for the cooperation between the university and society at large. The results of these workshops are also reflected in the conclusions offered here. The three areas are:

- 1) Arenas for interaction – “Interaction between people – a precondition for growth”
- 2) Gender perspectives – “Imagine Värmland offering equal opportunities to all”
- 3) Regional enlargement and alliances – “Värmland is not enough!?”

Within the framework of the project, we have also had visits by other Scandinavian participants.

1 REGIONAL OVERVIEW

1.1 An historical and economic/geographic backdrop

Business in Värmland has been largely based on raw forest products since the early days of industrialisation. While it is true that the iron ore of the Bergslagen region was the primary raw material of iron and steel manufacturing, the forest supplied the foundries and blast furnaces with the charcoal required to smelt the iron. When charcoal was replaced by other sources of energy, it created room for the emerging sawmill industry and thereafter the paper and pulp industry. The combination of raw forest products, water routes for driving timber, waterfalls that could be converted to hydropower, viable shipping routes to reach the market – all of this contributed to Värmland's development into a region that made a significant contribution to Swedish prosperity through extensive production and export of pulp and paper.

An engineering industry that saw potential customers with extensive needs for forest and paper machinery soon emerged. The products were developed in close cooperation between the forest and engineering industries. The geographical proximity between the companies was also advantageous from the standpoint of innovation. Technical innovations and product development could take place in networks of suppliers and customers.

During the zenith of the paper and pulp industry in the 1950s and early 1960s, large parts of Värmland were divided in terms of ownership between two large forest groups, Uddeholm and Billerud. Beyond a few large paper and pulp industries, primarily Skoghall, Uddeholm's base was the iron and steel industry. Billerud was orientated first and foremost towards the paper and pulp industry, primarily the Gruvöns Bruk mill, but also owned a number of large sawmills. There is a difference in terms of ownership between western and eastern Värmland. A relatively high percentage of private forest owners in the west combine agriculture and forestry, while eastern Värmland is dominated in an entirely different way by company-owned forests.

The older mill firms were distinguished by their broad spectrum of operations, which often included agriculture and power generation. By virtue of their extensive land holdings, the firms acquired a monopoly position that constrained establishment of new companies and gave them control over the local labour supply. Many of the public services that are now the responsibility of local authorities were provided by companies in days gone by. The mill firms provided health care, elder care and sport and recreation facilities. The local authorities successively took over the former duties of the mills and in conjunction with the structural crisis of the mid-1970s municipalities also took over land and older industrial buildings from the mills.

Billerud-Uddeholm AB was formed in 1978 but was acquired only six years later in 1984 by Stora Kopparbergs Bergslags AB, later Stora. Billerud became a subsidiary within the Stora Group and Uddeholm's epoch as a forest industry company came to an end. Extensive efficiency programmes led to the closure of a number of plants and the ownership structure of Uddeholm in particular changed in the 1970s and 1980s, which entailed concentration on developing the iron and steel industry. The *Munkfors bruk* mill became Uddeholm Strip Steel AB (USAB) and the *Hagfors Järnverk* iron mill became Uddeholm Tooling Svenska AB. The latter has been part of the Austrian group Böhler-Uddeholm AG, headquartered in Vienna, since 1991. In turn, Stora merged with the Finnish forest group Enso to become StoraEnso. Billerud was later revived as a company name, with the principal shareholders now an array of mutual funds and international investors.

The extensive efficiency measures within the forest industry also entailed concentration of plants near the shores of Lake Vänern while many of the factories in the interior of Värmland were

regarded as outmoded and were shut down. Large investments and modernisations were implemented for that reason at *Skoghallsverken* and *Gruvöns Bruk*. In addition to the engineering industry mentioned above, the development of other industries was stimulated and aided by the needs and resources of the large forest industry groups, such as a computer company spun off from Uddeholm, consultancies orientated towards the forest industry, logistics and haulage firms and companies in control and regulation technology.

The changes of ownership, internationalisation and relocations of key functions have changed the nature of the engineering industry connected to the forest industry. KMW (*AB Karlstad Mekaniska Werkstad*) opened its doors in 1860, initially manufacturing steam boilers, steamboats and railway material, later specialising in soda boilers and water turbines. The company moved into paper machines in the 1880s and expanded powerfully after acquiring *Kristinehamns Mekaniska Werkstad* in the 1890s. This was the beginning of that which later became Valmet and is now Metso Paper, one of the worlds leading manufacturer of machinery for soft paper and carton board.

Another company that originated from KMW is Kvaerner Pulping AB, a manufacturer of pulp processing equipment that was formerly part of the English/Norwegian Kvaerner Group and is now part of the Norwegian industrial group Aker Kvaerner. The same group also owns a construction company in Karlstad, Kvaerner Kamfab.

In terms of skills, industrial development based on the forest has given rise to extensive knowledge of processes and products. The growth of this expertise was nourished by the close relationships between firms and industries in the region. Exchange of personnel among companies in proximity to one another facilitated learning processes and skills, creating a fertile environment for innovation. Company research and development departments have also been gradually concentrated. In some cases, changed ownership structures hastened concentration tendencies and valuable expertise was sometimes lost. In other cases, skills and expertise were enhanced and a higher degree of specialisation was enabled within the region. The increasingly clear trend of recent decades in which products have gained an ever greater knowledge component has made research and development resources, relatively speaking, an increasingly important factor in improving products and processes. This stands in strong contrast to the situation of fifty years ago, when relatively unprocessed products could be sold for a tidy profit.

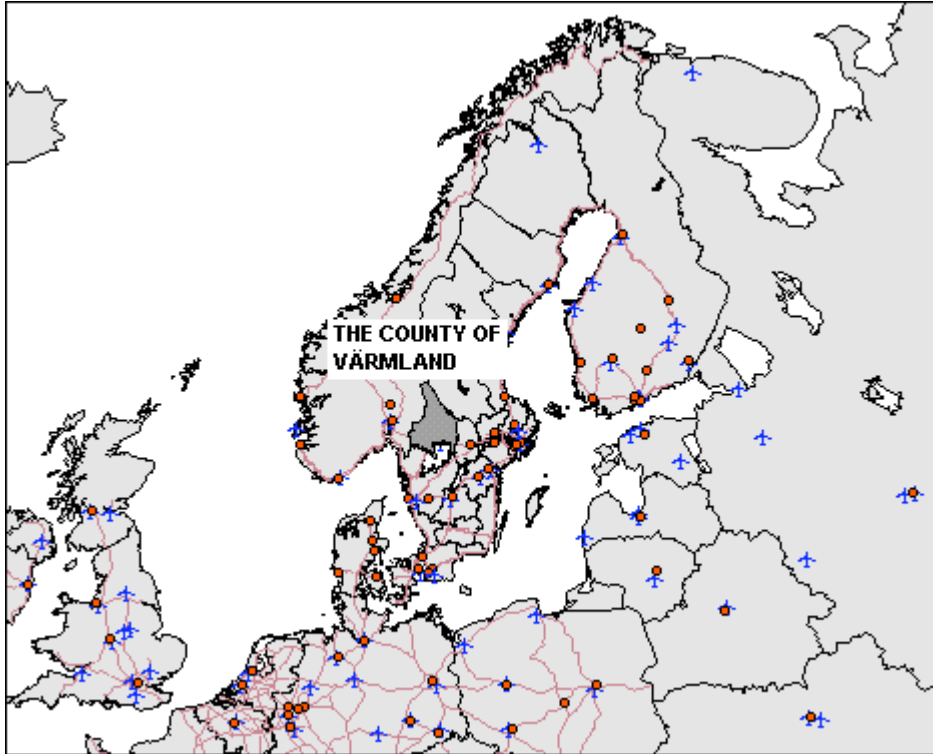
The interaction between company research resources and university research has taken on greater importance in the development work of recent times. Research and development at Karlstad University in particular has proved vital to the forest industry of the region. The advent of a master of science in engineering programme orientated towards chemical technology and research on paper coating are examples of the key role of the university. There are several research directions within the “Forest, Environment and Materials” knowledge profile at KU that are relevant to innovation systems. A strategic research field titled “The Properties and Function of Packaging” was recently established at the university.

1.2 The geographical situation

The county of Värmland has a clear centre-periphery structure. The centre of the county is Karlstad Municipality and the region around Karlstad. The development patterns can be compared to the structure of a hand, with valleys and thoroughfares representing the fingers. The county comprises 16 municipalities (cf. figure 1.3). Two of these have less than 5000 inhabitants. The municipality of Karlstad is the largest with slightly more than 80,000 inhabitants. Most municipalities have between 10,000 and 15,000 inhabitants. The development of large parts of the county is characterized by thinly populated areas and minor agglomerations. The average

population density in the county is 16 inhabitants per km². In Torsby Municipality, the figure is 3 inhabitants per km². Some of the medium-sized municipalities – Arvika and Kristinehamn – can be described as small towns.

Figure 1.1 Värmland in Europe



A characteristic of the county is the border with Norway and the proximity to the Oslo region. Cooperation in the border region has a long tradition, and contacts with Norway are extensive within different fields. The close relationship finds its expression in immigration from Norway; increased Norwegian ownership of real estate and businesses; Norwegian tourism, not least in the form of increasing border trade; increased commuting to, and employment in, Norway; and increasing contacts between Karlstad University and education institutions in neighbouring counties in Norway. The proximity of Norway ought to be kept in mind when statistics concerning employment, commuting, and migration in the border municipalities of the county are analyzed and interpreted.

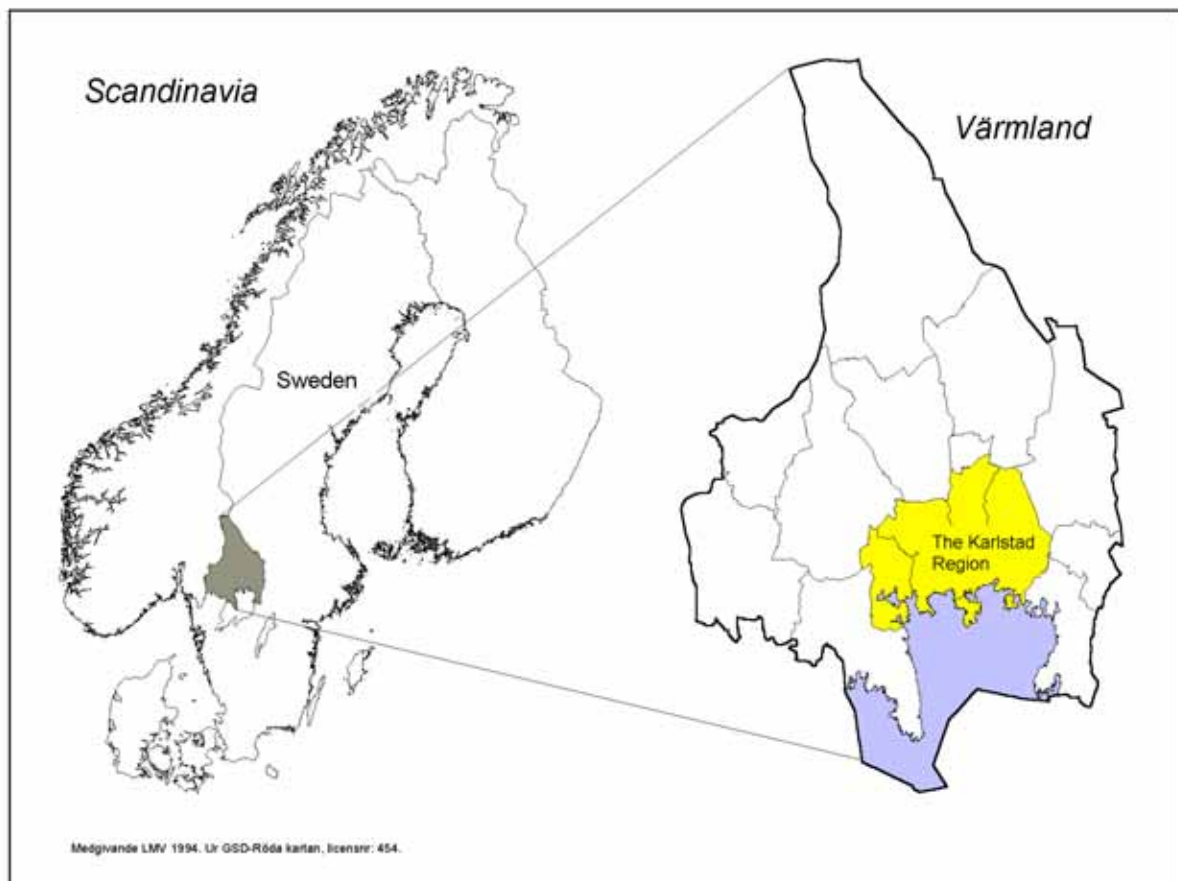
Figure 1.2 The Nordic Triangle



An even more important context for Värmland has been the idea of a growth corridor between Oslo and Stockholm (and Helsinki and St Petersburg). Värmland has a clear ambition to develop its role as an important link in this corridor or in this leg of the Nordic Triangle (within the framework of the EU Trans-European Networks (TEN)). In the analyses and strategies of the regional growth programme entitled *Sustainable Growth in Värmland 2004-2007*, a lot of emphasis is put on the proximity to the Oslo region and on relations and cooperation with Norway. In the programme, one of five explicit challenges to the county is “to develop (its role in) the growth corridor Oslo – Stockholm”.

Traditionally, Värmland also has close ties to western Sweden and its main centre, Göteborg. The position of the county is thus partly defined by the East-West connections between Stockholm and Oslo, and partly by the trunk road connecting Värmland with Göteborg in a North-South direction. In the planning of its infrastructure, the county’s position has therefore been described as the “Värmland Cross”.

Figure 1.3 Värmland in Scandinavia



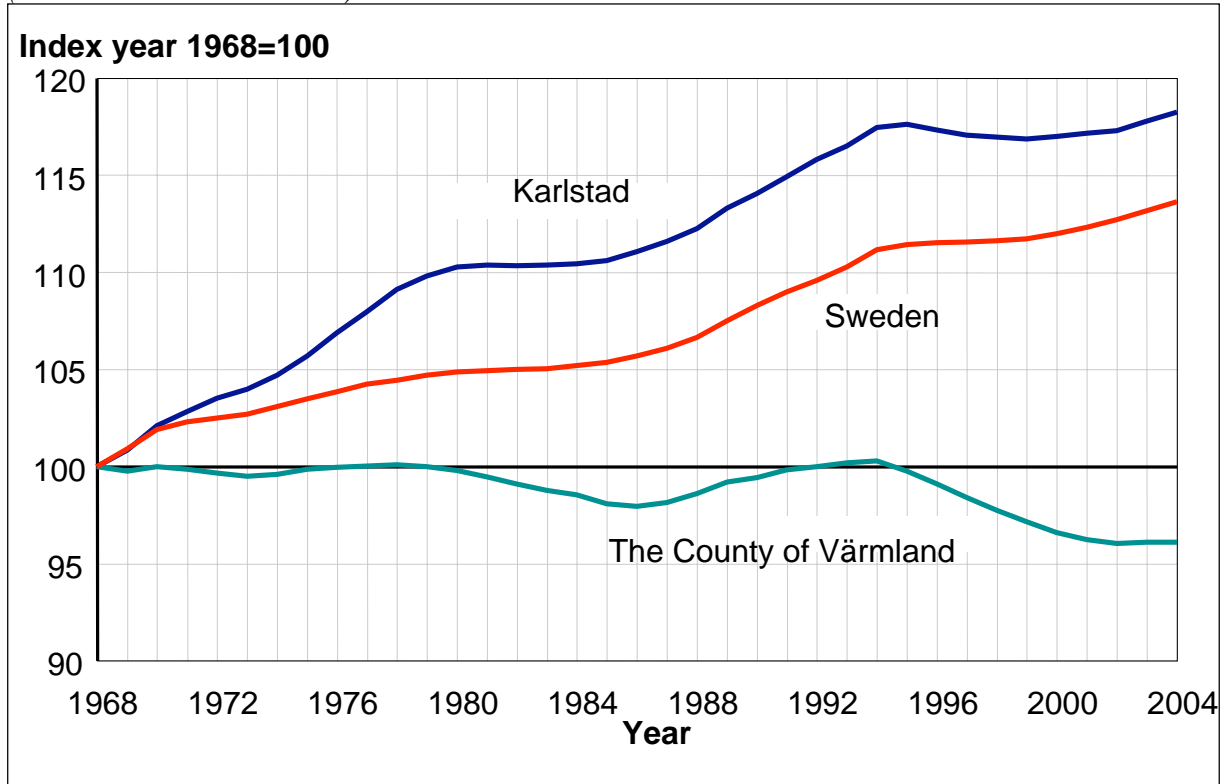
The size of the population and the demographic development of the municipalities in the county are shown in Table 1.1. As can be seen, it is basically only the municipalities of Karlstad and Hammarö that have had a positive demographic development in the last 15 years.

Table 1.1 Population and demographic development 1990-2004 for the municipalities in the county of Värmland (source: Statistics Sweden)

Municipality	1990	2000	2004	change 1990-2004
Arvika	26 887	26 188	26 275	-2.3
Eda	9 555	8 664	8 646	-9.5
Filipstad	13 341	11 598	11 081	-16.9
Forshaga	11 913	11 589	11 460	-3.8
Grums	10 274	9 551	9 423	-8.3
Hagfors	16 121	14 059	13 496	-16.3
Hammarö	13 468	14 162	14 390	6.8
Karlstad	76 467	80 323	81 768	6.9
Kil	12 221	11 912	11 844	-3.1
Kristinehamn	25 865	24 297	23 990	-7.2
Munkfors	4 816	4 162	4 039	-16.1
Storfors	5 299	4 725	4 569	-13.8
Sunne	13 564	13 619	13 604	0.3
Säffle	17 979	16 639	16 077	-10.6
Torsby	15 105	13 725	13 086	-13.4
Årjäng	10 235	9 790	9 799	-4.3
County of Värmland	283 110	275 003	273 547	-3.4

The demographic development in the Karlstad region, Värmland, and Sweden during the last 3-4 decades is shown in diagram 1.1.

Diagram 1.1 Demographic development in Sweden, Värmland, and the Karlstad region
(source: Statistics Sweden)



Karlstad Municipality is one of the 20 largest municipalities in the country, occupying position no. 19. The Karlstad region, i.e. the local labour market region of Karlstad (according to the definition by Statistics Sweden), occupies position no. 18 in the country in terms of population size. This placement is essentially the same as 20 years ago. However, the definitions of the local labour market regions change as commuting increases and its patterns change. In a special project occasioned by changes in the Swedish Armed Forces, one speaks of the Karlstad-Kristinehamn labour market region. This comprises almost 150,000 people, more than half the population of the county.

As indicated, Sweden can be divided into local labour market regions. In 1998, there were 81 such regions. The division is made by Nutek, i.e. the Swedish Agency for Economic and Regional Growth, and based, among other things, on commuter statistics, distances, the strength of the labour market, and “chains” of municipalities forming a major labour market region.

Table 1.2 Population size in the largest local labour market regions in Sweden (source: Statistics Sweden, whose current division into labour market regions has been used)

Labour market region	Population 2004	Increase 1984-2004, %	Position in 1984	Position in 2004
Stockholm	2 231 278	21.2	1	1
Göteborg	893 066	18.7	2	2
Malmö	657 508	17.8	3	3
Helsingborg	301 267	11.2	4	4
Linköping	244 439	8.6	5	5
Örebro	214 127	7.6	6	6
Trollhättan	185 955	5.3	8	7
Västerås	177 855	6.4	10	8
Skövde	177 348	-0.3	7	9
Borås	174 469	0.2	9	10
Norrköping	167 657	2.6	11	11
Kristianstad	167 139	3.9	12	12
Jönköping	156 070	10.2	15	13
Falun-Borlänge	149 421	4.0	14	14
Gävle	144 004	-0.4	13	15
Luleå	141 672	5.2	16	16
Umeå	140 893	19.5	19	17
Karlstad	128 885	7.0	17	18
Växjö	126 224	5.3	18	19
Kalmar	112 330	5.3	21	20
Sundsvall	111 566	-0.4	20	21
Halmstad	110 884	12.7	23	22
Eskilstuna	107 702	1.5	22	23
Östersund	93 540	-2.0	24	24
Karlskrona	89 420	0.1	25	25
Skellefteå	76 269	-4.4	26	26
Lidköping-Götene	71 967	1.2	28	27
Gislaved	61 886	1.9	29	28
Nyköping-Oxelösund	60 848	-22.1	27	29
Gotland	57 661	2.6	31	30

One of the five challenges in the Regional Growth Programme is to “connect Värmland”. This reflects an ambition to enhance the commuting possibilities through improved communications and to thereby expand the local labour market regions. Almost every fourth employee in the county now works and lives in two different municipalities. Commuting patterns show clear differences regarding gender and social background. Men commute farther than women and more frequently by car, while women commute more by public transport. People with a higher education and a higher income also commute more and farther than others.

The challenge “to connect Värmland” is not really about an increase in population, but about safeguarding the possibility of living away from the centres and about an increased interplay between town and country. There is also a tendency of more people choosing to live in the countryside close to the centres, not least in the Karlstad region.

In several municipalities – especially Karlstad, Hammarö, and Kristinehamn, but also Årjäng and Sunne – there are clear signs of increased housing construction.

Karlstad University is located in Kronoparken, on the outskirts of Karlstad. Kronoparken started to be built in the 1970s and has continued to expand in the '80s and '90s. The localization in Kronoparken has made continued expansion of the university possible. The share of student housing in the area has visibly risen. Kronoparken is also the neighbourhood that is most strongly characterized by ethnic diversity in Karlstad and in Värmland.

There is also higher education in Arvika Municipality (the Ingesund College of Music, which is a part of Karlstad University) and in Filipstad (Bergsskolan, parts of which belong to the University College in Falun/Borlänge). A comparatively new form of education, which functions as a complement to higher education at universities and university colleges, is advanced vocational training. Such training is now offered in several municipalities, including Sunne, Arvika, Filipstad, Karlstad, and Hammarö.

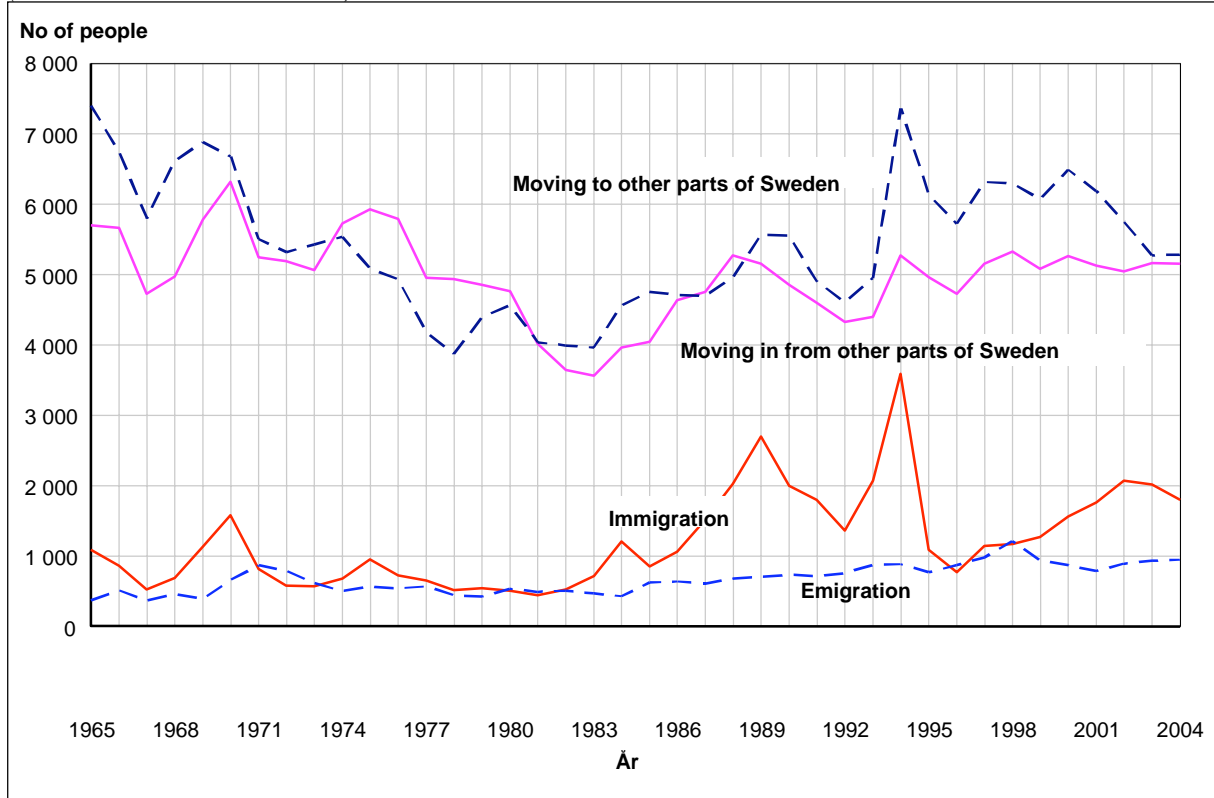
Karlstad University has been very ambitious as regards distance education. In the municipalities of the county, there is also an increased willingness to establish local learning centres, which make it easier for citizens to participate in distance education offered by Karlstad University and other higher education institutions. Knowledge-driven growth is a core idea in the Regional Growth Programme of the county.

1.3 The demographic situation

The demographic development of the county has shown a long-term negative trend during the last 50 years. The development in the last 20 years has partly been characterized by a more positive turn at the end of the 1980s and the beginning of the 90s, partly by an even more negative trend at the beginning of the new millennium. The positive development can be explained by the immigration of refugees and the, in European terms, high birth rate in the early 1990s. The positive development was thus mainly due to “national” causes. The percentage of persons with a foreign background (born abroad or born in Sweden with both parents born abroad) was, in 2003, approximately 9% in Värmland and about 15% in the country as a whole. The net immigration of the last five years can mostly be explained by immigration from Norway.

The more negative development during the last ten years is probably due to more regional causes. However, the situation in Värmland is similar to that in many other Swedish counties. After the crisis of the Swedish economy in the beginning and middle of the 1990s and the reassessment of the so-called general welfare policy that this triggered, the social and regional differences in Sweden have increased.

Diagram 1.2 Intra- and international migration to and from the county of Värmland
(source: Statistics Sweden)



Intra-national gross migration has for Värmland been around 11,000 persons per year during the last ten years. Per year, around 1,000 persons more have moved out of the county than into it. In recent years, however, net migration from the county has clearly slowed down. As far as intra-national migration is concerned, women are more likely to move than men. International migration does not show the same clear gender patterns.

Demographic development – in comparison with Sweden as a whole, and if the Karlstad region is compared to the county of Värmland – is reflected in the age structure of the population. Overall, the county has an older population than the country as a whole. The age structure of the Karlstad region is very similar to the national average, however. In fact, the share of persons aged 20-39 years is higher in the Karlstad region than in the country as a whole. Karlstad University surely is one of the explanations for this.

There is a higher share of men than of women in the age groups up to 39 years, though the reverse is true in the older age groups. The difference between the shares of men and women aged 20-39 years is also larger in the county as a whole than in the Karlstad region and in Sweden as a whole. The average life expectancy for women in Värmland is 81 years, and 76 years for men. The corresponding national averages are a year or so higher. The regional differences with respect to average life expectancy are small in Sweden.

Table 1.3 Age structure in the Karlstad region, the County of Värmland, and Sweden – percentages 1984, 1994 and 2004 (source: Statistics Sweden)

		Karlstad region			County of Värmland			Sweden		
		1984	1994	2004	1984	1994	2004	1984	1994	2004
0-19 years	men	13.2	12.7	12.1	12.5	12.4	11.8	13.0	12.7	12.3
	women	12.7	12.0	11.5	11.9	11.6	11.2	12.4	12.0	11.7
	m+w	25.8	24.6	23.6	24.4	24.0	23.0	25.3	24.7	24.0
20-39 years	men	14.4	14.2	13.3	13.6	13.2	12.0	14.6	14.1	13.2
	women	14.2	13.7	12.7	12.8	12.4	11.1	14.0	13.4	12.7
	m+w	28.6	28.0	26.1	26.4	25.6	23.2	28.6	27.5	25.9
40-64 years	men	14.6	15.4	16.6	15.0	15.5	17.1	14.5	15.3	16.6
	women	15.1	15.5	16.5	15.1	15.3	16.6	14.5	15.1	16.3
	m+w	29.7	30.9	33.1	30.2	30.8	33.7	29.0	30.4	32.9
65-79 years	men	5.7	5.6	5.5	6.8	6.7	6.5	6.0	5.8	5.5
	women	7.0	6.8	6.7	8.1	7.8	7.5	7.4	7.1	6.4
	m+w	12.7	12.4	12.3	15.0	14.5	14.0	13.4	12.8	11.9
80+ years	men	1.1	1.4	1.8	1.5	1.8	2.2	1.3	1.6	1.9
	women	2.0	2.7	3.2	2.6	3.2	3.8	2.4	3.0	3.4
	m+w	3.2	4.1	5.0	4.1	5.1	6.1	3.6	4.6	5.4
Total	men	49.0	49.2	49.3	49.6	49.6	49.7	49.4	49.4	49.6
	women	51.0	50.8	50.7	50.4	50.4	50.3	50.6	50.6	50.4
	m+w	100	100	100	100	100	100	100	100	100

Together with the other Nordic countries, Sweden often comes out top in descriptions of national welfare in different countries. Systematic and regular measurements of welfare from a regional perspective are not carried out. Regional differences are small in an international perspective, but they do exist and generally follow a clear centre-periphery pattern. The regional welfare patterns are mosaic in nature and can be hard to capture (Statistics on Living Conditions in Värmland; report no. 2001:14 by the County Administrative Board of Värmland).

The following are examples of regional differences concerning important welfare factors:

- The total income from gainful employment is lower in Värmland than in Sweden as a whole. The total income is higher for men than for women. The difference from the national average is larger for men than for women. The Karlstad region is quite close to the national average.
- The “ill-health figure” (an official measure of ill-health based on the number of sick days) has risen in recent years, and the differences between Värmland and the country as a whole have increased. The ill-health figure is higher for women than for men. This is true for both Värmland and the country as a whole.
- Expenses for social-security payments – whether calculated per inhabitant or per receiving household – are lower in Värmland than in the country as a whole and higher in the Karlstad region than in the county as a whole (cf. Table 1.4). Single mothers with children and single men constitute over-represented households when it comes to social-security payments.

Table 1.4 Social-security payments in the Karlstad region, the county of Värmland, and Sweden in 2003 (source: Statistics Sweden)

Geographical entity	No. of receiving households	Amount paid per household (SEK)	Expenses per inhabitant (SEK)
Karlstad region	3 287	34 594	914
County of Värmland	6 732	28 441	700
Sweden	228 932	36 141	922

Participation in tertiary education also shows regional differences. However, both the share of people proceeding to tertiary education and the share of people who have received such education have increased steadily in the last decades. The geographical spread of tertiary education has been part of the political strategy to boost educational attainment in the country as a whole. The share of persons who complete their upper secondary studies and proceed to tertiary education within three years varies between the municipalities in Värmland, from 23% to 47%. The latter figure is for the municipalities of Karlstad and Hammarö. The average for the County of Värmland is 40%, and the national average is 43%. More women than men go on to higher education. With 56%, women in Hammarö Municipality stand for the highest percentage in Värmland in this respect, and men in Grums Municipality for the lowest with 12%.

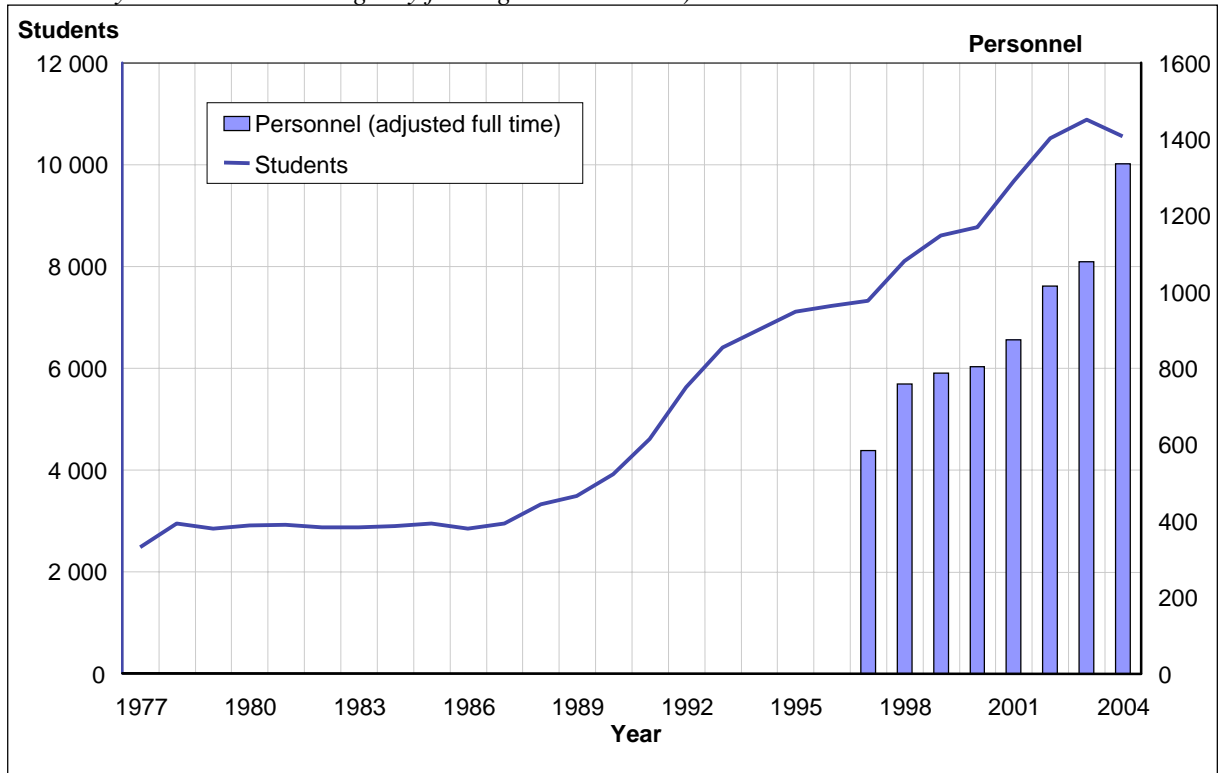
The share of persons with tertiary education varies from 15% to 39% between the municipalities in Värmland. Also in this respect, Karlstad and Hammarö occupy the highest positions – even higher than the national average. The proximity to Karlstad University ought to be an important reason for this. Other explanations can probably be found in the socio-economic structure of these municipalities – as compared to the other municipalities in the county. The gender pattern is the same as above, i.e. women have attained higher education levels than men. From a long-term historical perspective, this is likely to be the most obvious change that has taken place in the realm of gender equality. The share of persons with tertiary education varies from 12% for men in several municipalities (Eda, Munkfors, and Årjäng) to 42% and 41%, respectively, for women in the municipalities of Hammarö and Karlstad. In the plan of action that is linked to the county’s regional growth programme, one of the five challenges is “to raise the educational level” of the county (*Sustainable Growth in Värmland – Plan of Action 2004-2005, Survey 2006-2007*).

Table 1.5 People proceeding to tertiary education and educational attainment in municipalities in Värmland, the County of Värmland, and Sweden (source: Statistics Sweden)

Municipality/ Region	Students who have completed an upper secondary programme in 1999/2000 and proceeded to tertiary education within three years (in %)			Share of people aged 25-64 years with tertiary education (in %)		
	Men	Women	Total	Men	Women	Total
Arvika	29	51	39	20	28	24
Eda	15	32	24	12	18	15
Filipstad	39	57	48	13	18	15
Forshaga	30	38	34	20	26	23
Grums	12	34	23	13	20	16
Hagfors	26	41	34	13	20	16
Hammarö	40	56	47	34	41	37
Karlstad	42	52	47	36	42	39
Kil	34	52	43	20	29	25
Kristinehamn	36	48	42	20	28	24
Munkfors	17	53	38	12	20	16
Storfors	36	52	42	14	21	18
Sunne	23	39	31	17	27	22
Säffle	34	59	46	18	25	21
Torsby	25	28	26	13	23	18
Årjäng	31	29	29	12	18	15
<i>County of Värmland</i>	34	47	40	24	31	27
Sweden	37	48	43	30	36	33

The number of students at Karlstad University has risen sharply in the last decades and is now around 10,500. The number of employees (full-year) has tripled in the last ten years. More than 60% of the students are women. This can partly be explained by the strength of the teacher and nursing educations at Karlstad University and the traditional gender patterns when it comes to the choice of education and profession. More than 50% of the students at Karlstad University come from the county of Värmland. (For more information, cf. *Fakta om länet – Höskoleutbildade i Värmlands län* ('Facts about the County – People with Higher Education in the County of Värmland'), by the County Administrative Board of Värmland (2005).)

Diagram 1.3 Students and employees at Karlstad University and the former Karlstad University College (Data for employees from before 1997 has not been included. Sources: Karlstad University and the National Agency for Higher Education.)



[Change: Studenter/Studerande → Students, Personal/Personal (omräknat till heltider) → Employees/Employees (converted into full-time jobs), År → Year]

1.4 The economic and social base

The economic structure of the County of Värmland and the Karlstad region, as compared to the country as a whole, is shown in Table 1.6. As can be seen, Värmland has a larger industrial sector than the country as a whole. The county also has proportionately more people employed in the areas of education, health care, and social services. The economic structure of the Karlstad region differs in several respects from that of the county as a whole. The share of industrial workers is thus lower than the national average while the areas of trade and communications are stronger than the national average. Education is also clearly stronger in the Karlstad region than in both the county and the country as wholes. Karlstad University is in all probability an explanation for this.

Table 1.6 *The economic structure in the Karlstad region, the County of Värmland, and Sweden in 2003 (source: Statistics Sweden, Regional Labour Market Statistics)*

Area	Karlstad region		County of Värmland	Sweden
	No. of employees	Share of employees (%)	Share of employees (%)	Share of employees (%)
Agriculture, forestry, hunting, fishing	851	1.5	2.2	1.8
Manufacturing industry, mines	8 669	15.0	20.9	18.1
Energy supply, water supply, waste disposal	568	1.0	0.9	1.0
Construction industry	3 512	6.1	5.7	5.8
Trade; transport, warehousing; communication	11 022	19.1	16.7	18.5
Personal and cultural services	3 988	6.9	6.6	6.9
Credit institutions, media, real estate management, company services	7 104	12.3	9.2	13.2
Civil authorities, defence; internat. organizations	3 602	6.2	5.5	5.7
R&D, education	7 094	12.3	11.7	11.2
Health care, social services; veterinarians	10 467	18.1	19.0	16.5
Area unknown	848	1.5	1.6	1.5
Total	57 725	100	100	100

According to an established classification, one distinguishes between labour-intensive industries and ditto services, as well as capital- and knowledge-intensive industries and services. This division can of course be discussed. However, a comparison between the Karlstad region, the County of Värmland, and the country as a whole is shown in table 1.7. One might point out the larger share of capital-intensive industry in Värmland as compared to the country as a whole, and the relatively large share of employees in the knowledge-intensive service sector in the Karlstad region.

Table 1.7 *Labour-intensive, capital-intensive, and knowledge-intensive sectors in the Karlstad region, the County of Värmland, and Sweden in 2002; share of employees in % (based on Regional Labour Market Statistics by Statistics Sweden)*

Classification according to Ohlsson-Vinell	Karlstad region	Värmland	Sweden
Labour-intensive industry	4.5	7.3	6.7
Labour-intensive services	21.2	19.6	20.3
Capital-intensive industry	6.1	6.3	3.0
Capital-intensive services	7.9	6.7	7.9
Knowledge-intensive industry	4.3	7.3	8.7
Knowledge-intensive services	14.6	10.8	15.4
Other	41.3	42.0	38.1
Total	100.0	100.0	100.0
<i>of which the knowledge-intensive sector</i>	<i>18.9</i>	<i>18.2</i>	<i>24.1</i>

Investments into research and development in the private sector are lower in Värmland than in Sweden as a whole. However, research and development in the private sector have expanded both

in Värmland and in Sweden as a whole. Still, what has happened in recent years makes predictions of future developments difficult – cf. Table 1.8. When it comes to research at universities and university colleges (man-years per 1,000 inhabitants), Värmland clearly lags behind counties with “old universities”, but is on a par with, or even ahead of, e.g. the counties of Örebro and Kronoberg (both Örebro and Växjö university received their university status at the same time as Karlstad University). The status of university has been important for the development of research at Karlstad University. In the Regional Growth Programme, one of the strategies focuses on the importance of efforts in R&D.

In 2005, on account of the structural changes in national defence and the consequences of this process for the region, a thorough analysis of the region’s growth potential has been carried out. The results are to be presented to the government in December 2005. Already now, certain results of the analysis can be presented here.

Summary of Growth Analysis Värmland: Why Is Värmland Losing Momentum?

In the period on which this investigation is based, 1993-2002, productivity has increased faster in Värmland than in the country as a whole. Especially after the year 2000, it has been advantage Värmland in this respect. At the same time, employment in the county has fallen by 0.2% while in the country as a whole it has risen by 10.8%. Since the GRP is a function of these two factors (the number of employees multiplied by the average productivity per employee), this means that Värmland’s contribution to the GNP has fallen. In other words, Värmland has an employment problem.

The explanation for the weak growth can primarily be found in the fact that the business mix is unfavourable to growth, since a large share of the employees work in fields that suffer from weak growth nationally. The weak growth can also be explained by the low geographic density of companies, few companies in relation to the population, small labour market regions, and high expenses for travelling to big cities. In municipalities where the number of companies is high in a Värmland perspective, both per capita and per unit of area, and where the business mix is favourable from the point of view of growth (Karlstad, Årjäng, and Sunne), employment growth has been fast if compared to Värmland as a whole. In municipalities where the number of companies is low and the business mix unfavourable (Säffle, Munkfors, Grums, Forshaga, Hagfors, and Filipstad), employment development has been very poor.

Further factors that affect growth and that ought to be strengthened in the county are the ability to innovate, entrepreneurship, and the ability to cooperate. Growth-promoting work in the county requires the key stakeholders’ agreement on very strong, long-term efforts in favour of a small number of centres for competence and development. In these, education, R&D, entrepreneurship, and business development are connected through the formation of multi-disciplinary teams working with innovative processes and with the aim to increase the number of new products and of new companies in Värmland. There are also strong indicators suggesting the county as a whole would do well to adopt a positive attitude vis-à-vis the division into a strong service sector in Karlstad and a strong industry in the other municipalities. This presupposes that the physical and social infrastructure is well developed, so that there can be strong interaction between the municipalities of the county with respect to labour and other issues. Reducing the cost of travelling to the big cities will also contribute to faster growth.

The report Why is Värmland Losing Momentum? was commissioned by Region Värmland and the County Administrative Board of Värmland and produced by the consulting firm Inregia. In the report, reference is made to the American researcher Rosabeth Moss Kanter, who divides regions into three groups: “makers”, “thinkers”, and “traders”. The indications are that Värmland ought to try to become an internationally competitive maker region in an alliance with other regions that are thinkers and traders.

Table 1.8 Man-years and expenses for R&D in the business sectors of the County of Värmland and Sweden (source: Statistics Sweden)

Year	Man-years in business sector R&D in relation to private sector employment (%)		Expenses for business sector R&D in relation to GDP (%)	
	County of Värmland	Sweden	County of Värmland	Sweden
1997	0.66	1.86	0.74	2.60
1999	0.46	1.74	0.55	2.69
2001	1.43	1.85	2.03	3.26
2003	1.08	1.79		

According to Statistics Sweden, there are about 1200 exporting and about 1700 importing companies in Värmland (*Fakta om länet – Några utvecklingsdrag på temat Värmlands internationella beroende* ('Facts about the County – Some Developments Concerning Värmland's International Dependence')), by the County Administrative Board of Värmland (2004)). Most of these are surprisingly small. Generally speaking, companies export to and import from the entire world. However, the exports are more spread out geographically than the imports. According to statistics, 50 companies exported each for more than 50 million SEK in 2003. For 30 of these companies, exports surpassed 100 million SEK. Of the 50 companies mentioned, almost 20 exported to all groups of countries.

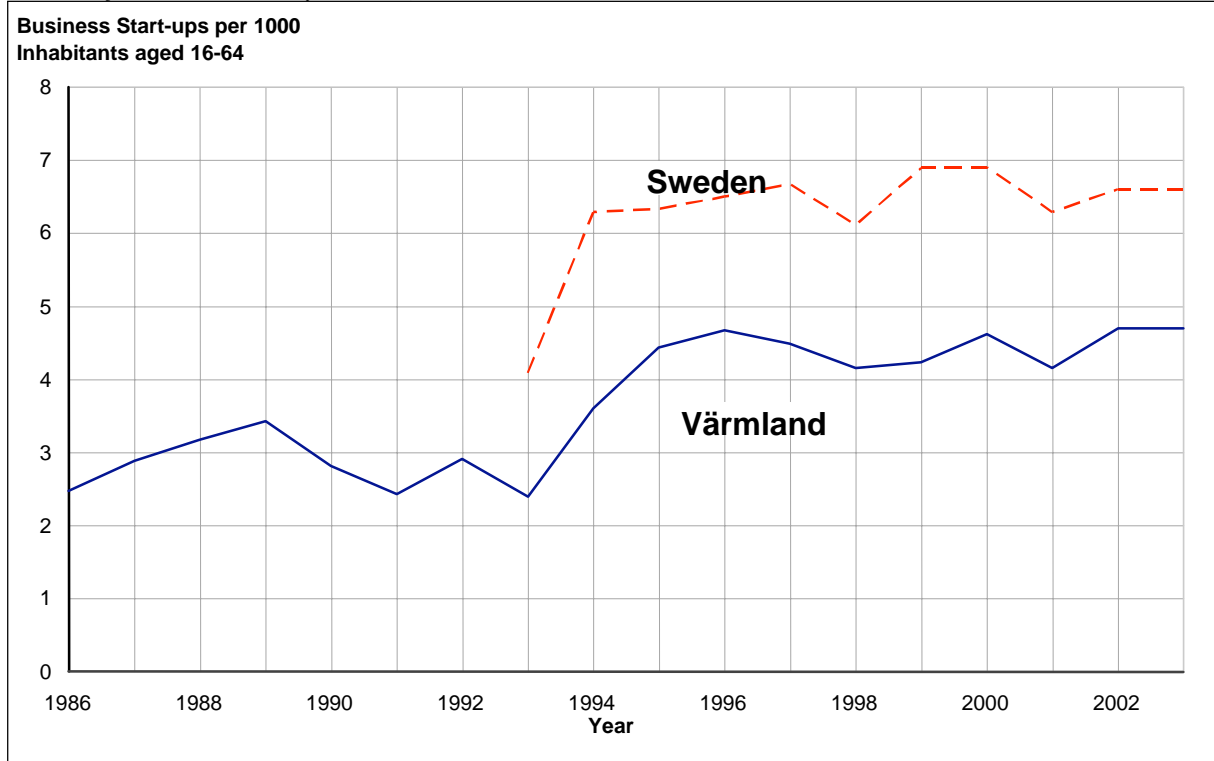
Foreign ownership of businesses in Värmland has multiplied in the last 20 years. Almost a quarter of all employees in the private sector are now working in foreign-owned companies. There is foreign ownership not only in industry, but also in trade, services, and health care.

In the regional growth-promoting work, investments in, and the development of, a number of innovative clusters are among the core ambitions. These efforts have their origin in ideas concerning the interaction between industry, the academic world, and the authorities. The following quote is from the declaration of intent by Partnerskap Värmland ('Partnership Värmland'): *Our efforts in research and development will be decisive for how we succeed in our ambition to create and develop innovative clusters. Public agencies as well as private businesses must invest more in such initiatives. This is especially true of The Packaging Arena, where we want to gather the world's leading competence in packaging and offer it on a global stage. We also have our joint resources and competences in the metal and engineering industries. We have a unique concentration of IT companies, as is manifest in the Compare association. We believe in their potential for development and in their importance for the regional economy of Värmland. Our efforts in tourism and the event industry have to do with ideas around meals and food, among other things. Our ambitions when it comes to events also have to do with our competence in IT. Our cluster processes are thus not separated from each other. The large developmental potential resides in our ability to cooperate with the rest of the world. Värmland has to become much better in building relations and networks with others outside the county. We also have to become better in doing business.*

Conclusions from different studies and analyses indicate a need for change and renewal in the economy of Värmland. (See e.g. the report 2005:8 *Näringslivsklimat och entreprenörskap – En jämförelse mellan Värmlands, Dalarnas och Gävleborgs län* ('Business Climate and Entrepreneurship: A Comparison between the Counties of Värmland, Dalarna, and Gävleborg') by the County Administrative Board of Värmland.) In such a renewal, the starting of new businesses is a core aspect. The number of business start-ups is lower in Värmland than in the country as a whole. Developments are in accordance with national trends, however. In Värmland

as well as on a national level, a third of new businesses are started by women. The lines of business for start-ups are also different for women and men.

Diagram 1.4 New businesses in the County of Värmland and in Sweden (source: The Swedish Institute for Growth Policy Studies)



Attitudes towards entrepreneurship have clearly changed during the last decade or so. According to studies, about half of all persons aged 18-70 can now imagine being self-employed (*Vem vill bli företagare – attityder till företagande i Sverige 2004* ('Who Wants to Be a Business Person – Attitudes to Entrepreneurship in Sweden in 2004'), by Nutek). 6 out of 10 men in Värmland can imagine starting a business, and 4 out of 10 women. About 20% of those asked would even prefer to be self-employed. The figures for Värmland are lower than for the country as a whole. From an international perspective, the regional differences can be considered small, however.

The entrepreneurial spirit as well as the business climate varies between the municipalities of the county. The number of self-employed persons is especially low in municipalities that have been dominated by single industries and companies (usually iron and steel works). Contrary to expectations, there is no clear connection between a high number of entrepreneurs (a good entrepreneurial spirit) on the one hand, and positive attitudes to, and the starting of, new businesses on the other. Measurements of the business climate in the municipalities of the country are carried out by the Confederation of Swedish Enterprise. According to these measurements, the business climate in most municipalities in Värmland has improved in recent years. The studies rely on companies' experiences or assessments of the business climate from different perspectives. Generally speaking, "hard" factors such as the proximity to infrastructure are more important in the collective assessment of the business climate in larger municipalities (e.g. Karlstad) while "soft" factors such as local politicians' attitudes to, and interest in, the businesses of their municipality play a bigger role in the minor municipalities.

In Table 1.9, figures concerning the occupational distribution are presented. The overview shows strong similarities between the Karlstad region and the country as a whole. Compared to the *county* as a whole, the share of persons employed to do “work that requires theoretical specialist knowledge” and “work that requires a limited university education or equivalent knowledge” is clearly larger in the Karlstad region. This suggests that the labour market for persons with higher education is geographically concentrated in the county. The table also shows the share of women in the different areas of work. A completely balanced gender distribution corresponds to the figure of 50%. The table indicates clear gender-related differences. The areas with the most balanced gender distribution are those already mentioned.

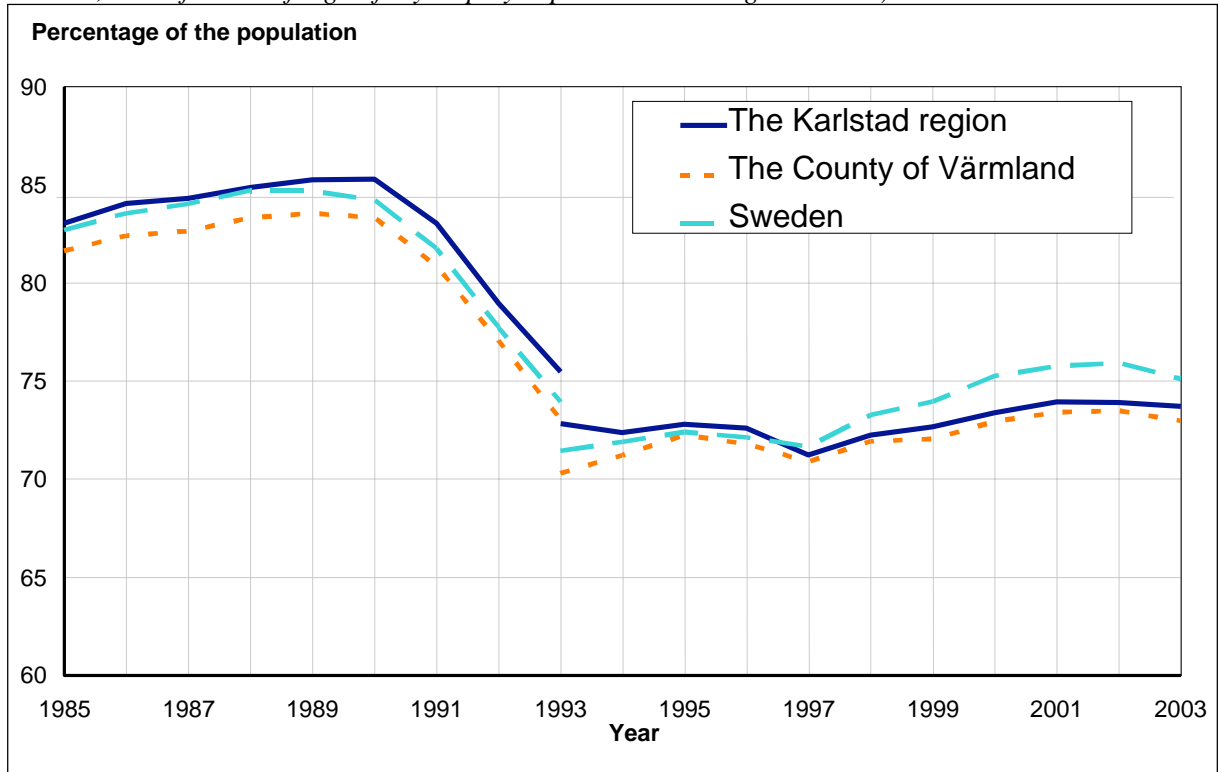
Table 1.9 Occupational distributions according to occupational area in the Karlstad region, the County of Värmland, and Sweden in 2003 (source: Statistics Sweden, the Occupational Register)

Category	Share of the occupational area (%)			Share of women (%)		
	Karlstad region	County of Värmland	Sweden	Karlstad region	County of Värmland	Sweden
Leadership work	4.7	4.5	5.4	22.2	23.3	27.2
Work that requires theoretical specialist knowledge	17.1	13.6	17.2	51.4	54.3	52.6
Work that requires a limited university education or equivalent knowledge	19.5	16.3	18.1	52.9	54.6	51.8
Office and customer service work	8.8	7.8	9.3	72.9	72.0	70.3
Service, care, and sales work	19.2	21.3	18.8	80.6	83.4	79.4
Work in agriculture, horticulture, forestry, and fishing	0.9	1.0	0.7	29.7	26.0	25.7
Manual labour in construction and manufacturing work	10.1	10.5	9.1	4.2	4.6	6.5
Process work and machine operation, transport work, etc.	9.5	13.6	10.4	10.5	12.8	17.1
Work that does not require a particular professional education	6.1	6.6	5.9	61.1	62.3	57.3
Military work	0.1	0.4	0.3	0.0	1.3	3.9
Unknown	4.1	4.4	4.7	34.7	35.6	38.1
Total	100.0	100.0	100.0	48.8	48.9	49.1

The degree of employment for persons aged 20-64 is about 75% in the Karlstad region as well as in the county of Värmland and the country as a whole. The development of the employment levels is also very similar for these three areas. However, the figures for the Karlstad region and the County of Värmland are somewhat lower than those for the entire country. On the national level, the official goal is that 80% of the population are gainfully employed. Seen from an

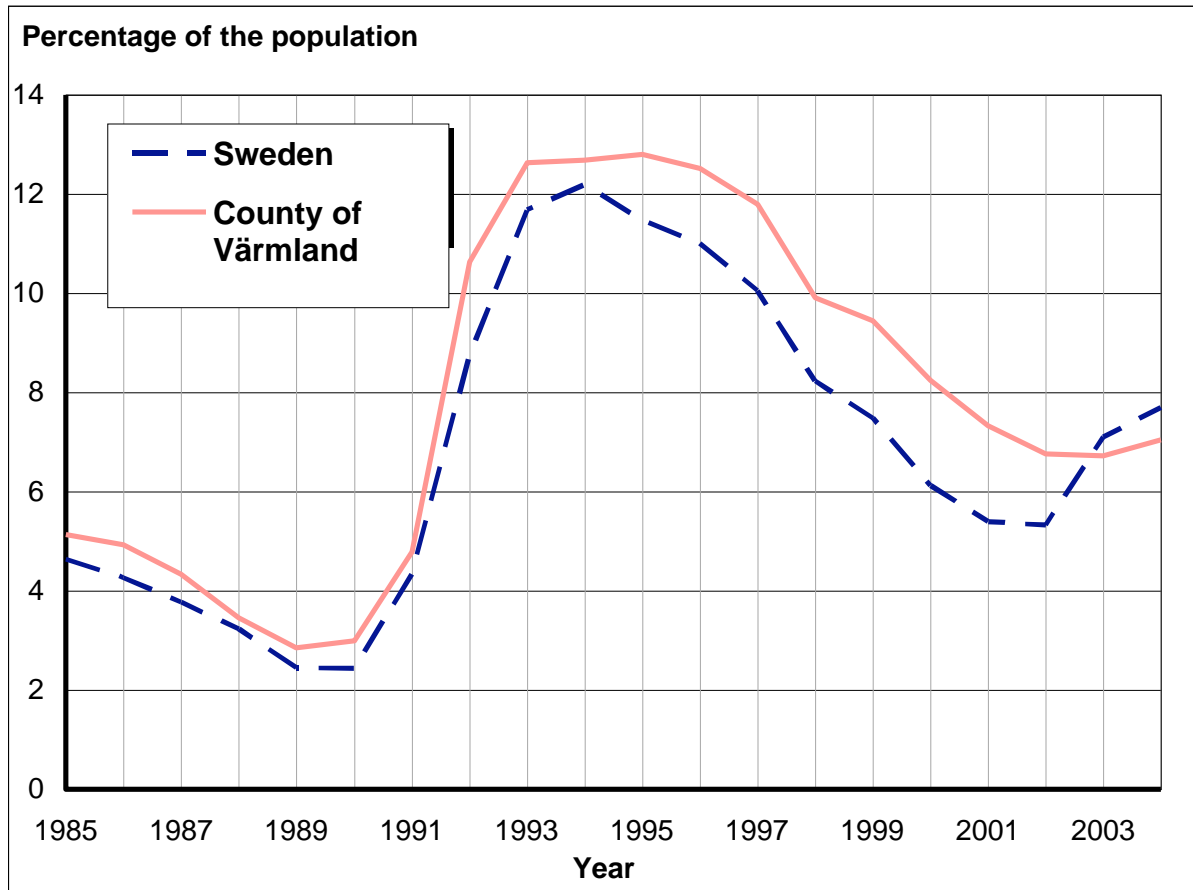
international perspective, the differences between the employment levels for men and women are comparatively small in Sweden. Men do reach a higher degree of employment than women, however. Women also work part-time more often than men, which means that the gender differences are bigger than what the overall figures reveal.

Diagram 1.5 Employment levels for people aged 20-64 in the Karlstad region, the County of Värmland, and Sweden (source: Statistics Sweden, labour statistics based on administrative sources; the definition of a gainfully employed person was changed in 1993)



Changes in unemployment in the County of Värmland usually correspond to developments on a national level. Värmland was, however, hit harder by the national job crisis in the middle of the 1990s. During some years in the middle of the 1990s, Sweden suffered a net loss of about half a million jobs. Neither the country as a whole nor Värmland have fully recovered from those crisis years.

Diagram 1.6 Unemployment, as defined by the Swedish National Labour Market Administration, in the County of Värmland and Sweden (source: the Swedish National Labour Market Administration; the labour pool is here defined as the population of working age, i.e. 16-64 years)



Unemployment is generally lower in the Karlstad region than in the county and the country as wholes. This means that unemployment levels vary within the county. It is also higher for men than for women. An active labour market policy is very important in Swedish politics. With the help of different programmes, open unemployment is kept down. In Värmland, the number of persons in labour market programmes often equals the number of the openly unemployed. Labour market policy often focuses on additional qualifications for the unemployed and on training in professions with a shortage of skilled labour. There is an increased focus on the young unemployed. The municipalities have a general responsibility for young people up to the age of 18.

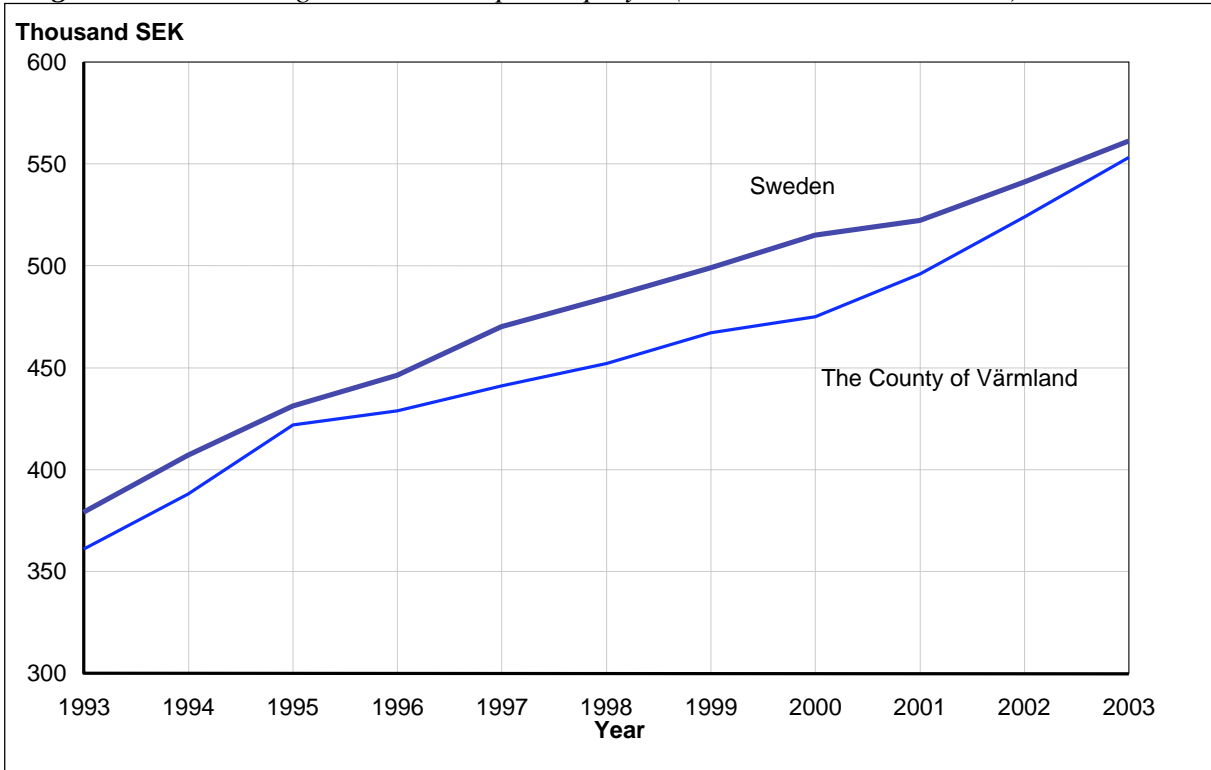
Table 1.10 *Unemployment and persons in labour market programmes in % of the labour pool in the Karlstad region, the County of Värmland, and Sweden in March 2005 (source: the Swedish National Labour Market Administration)*

Region	Total			Women			Men		
	Openly unem- ployed	Persons in pro- grammes	Sum	Openly unem- ployed	Persons in pro- grammes	Sum	Openly unem- ployed	Persons in pro- grammes	Sum
Karlstad region	3.7	3.7	7.4	3.1	3.4	6.5	4.2	4.1	8.3
County of Värmland	5.0	4.9	9.9	4.0	4.7	8.7	5.9	5.1	11
Sweden	5.3	3.0	8.3	4.7	2.9	7.6	5.8	3.0	8.8

The political discussion of the labour market situation has also – more and more in fact – focussed on the problems regarding the long-term sick and early retirements. In important respects, the situation has to do with a shift between insurance systems: unemployment insurance vs. the health insurance system. The number of long-term sick persons in Värmland was 7,200 in December 2004 and that of early retirees 18,900, according to the Social Insurance Office of Värmland. One of the overall political objectives is therefore to get more people to work. This objective is linked to political aims concerning both growth and welfare.

Productivity in the economy of Värmland is high and compares well with that in the rest of the country. The county occupies the third position in the country when it comes to GRP per employee in 2003. The fact that the county has achieved such a high position can to a large extent be explained by large investments in the paper and pulp industry, which has generated strong growth in the years 1998-2003. The significant increase in economic productivity is important for the ability to compete on the world market. At the same time, it becomes more and more difficult to achieve growth with a simultaneous rise in employment. There are strong indicators of tendencies towards job-less growth.

Diagram 1.7 Gross Regional Product per employee (source: Statistics Sweden)



In Värmland’s growth programme, a number of effect indicators are listed that are expected to show whether the development in the county goes according to the aims and general intentions expressed in the programme. These indicators have also been linked to goals. The goals represent regional adaptations of national goals (where they exist). In a report on the implementation of the Regional Growth Programme and the comprehensive processes connected to it, a follow-up of the results is presented (*Sustainable Growth in Värmland: A Report to the Annual VärmlandsMötet ('Värmland Convention') on 29 April 2005*, by the County Administrative Board of Värmland and Region Värmland); cf. the table below.

Table 1.11 Goal and effect indicators on the top level of the programme (Sustainable Growth in Värmland)

Indicator	Start of the programme	Current value	Will we reach the goal?	Goal 2007
GRP (billion SEK)	55.7 (2000)	65.2 (2003)	+	68.1
Energy consumption related to GRP	351 (2000)			325
Total salaries (billion SEK)	23.5 (2001)	24.2 (2002)	+	28.0
Net immigration	M: 301 (2002)	-70 (2004)	-	M: 350
	W: 170 (2002)	-66 (2004)	-	W: 250
Business climate	178 (2002)	154 (2004)	+	150
Employment level (%)	M: 74.7 (2001)	74.4 (2003)	-	M: 78.0
	W: 72.0 (2001)	71.5 (2003)	-	W: 75.0
Employment level for foreign-born (%)	M: 51.5 (2001)	49.3 (2003)	-	M: 55.0
	W: 50.1 (2001)	48.1 (2003)	-	W: 55.0
Share of persons aged 20-64 with higher education (%)	M: 21.8 (2002)	22.9 (2003)	+	M: 30.0
	W: 28.6 (2002)	30.7 (2003)	+	W: 35.0
Research at Karlstad U. (man-years)	224 (2001)	278 (2003)	+	300
Students with distance education	2400 (2001/02)	2190 (2003)	-	3000
Newly reported vacancies (average per month)	1167 (2002)	1071 (2003)	-	1500
Share of persons aged 16-64 with no employment (%)	M: 7.5 (2002)	8.0 (2004)	-	M: 6.0
	W: 6.0 (2002)	6.0 (2004)	-	W: 4.5
Compensation for ill-health (average no. of days per person)	M: 38.8 (2002)	49.0 (2004)	-	M: 30
	W: 59.4 (2002)		-	W: 40
Net construction of homes	169 (2002)	299 (2004)	+	200
No. of outgoing commuters	M: 16,688 (2001)	17,038 (2003)	(+)	M: 18,000
	W: 11,603 (2001)	11,810 (2003)	(+)	W: 13,000
New companies per 1,000 inhabitants aged 16-64	M: 6.0 (2002)	6.2 (2003)	(+)	M: 7.5
	W: 2.0 (2002)	3.0 (2003)	+	W: 5.0
Share of self-employed (%)	M: 9.4 (2001)	9.0 (2003)	-	M: 12
	W: 4.2 (2001)	4.0 (2001)	-	W: 7
Market supply (%)	44.3 (2001)			50.0

Explanations

- + Developments suggests that we reach the goal in 2007
- (+) Developments go in the right direction, but too slowly for us to reach the goal in 2007
- Developments go in the wrong direction

Diagram 1.8 Equality index for municipalities in Värmland

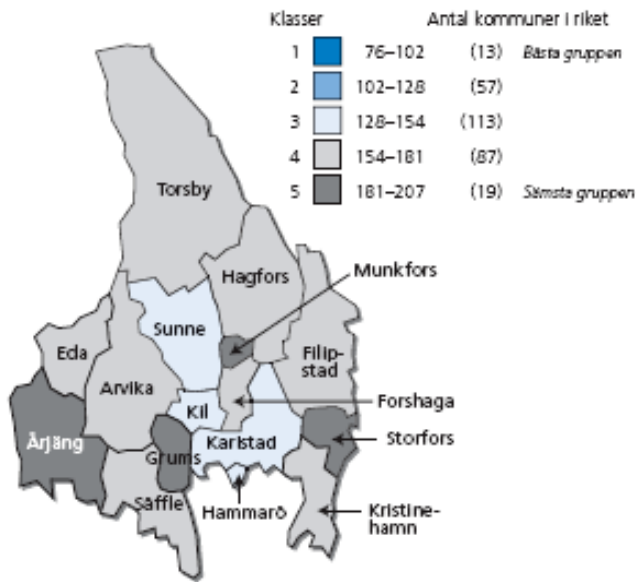
* (Translation below)

JämIndex 2003

Kommunerna rangordnas efter en sammantvågning av följande variabler: eftergymnasial utbildning, förvärvsarbete, arbetslöshet, inkomst, näringsgrenar, föräldrapenning, tillfällig föräldrapenning, unga vuxna, ohälsotal, kommunstyrelse, kommunfullmäktige, egna företagare.

Se mer:

www.h.scb.se/scb/bor/scbboju/jam_hm/index.asp
eller www.scb.se – Hitta rätt: A–Ö – Under J sök "Jämställdhet"



[(*) Change: Equality index 2003 – The municipalities are ranked after the following variables have been taken into account: tertiary education, gainful employment, unemployment, income, business mix, parents' allowance, temporary parents' allowance, young adults, 'ill-health figures', municipal executive board, municipal council, self-employed persons. – For more information, see: ... / Klasser → Class, Antal kommuner i riket → No. of municipalities in the country, Bästa gruppen → Best group, Sämsta gruppen → Worst group]

1.5 Governance structure

1.5.1 *The public economy in Värmland*

Of the total taxation in Sweden, the share of the state is 23%, the share of the 20 county councils 26%, and the share of the 290 municipalities 51% (source: Statistical Yearbook of Sweden –The figures are for 2004). The tax revenues of the Värmland County Council are estimated to reach approximately 4 billion SEK in 2005 and the combined tax revenues of the 16 municipalities in Värmland 8.5 billion SEK in the same year. The municipalities in Värmland further receive an annual tax equalization contribution, i.e. money transferred from other municipalities via the national government. In 2005, this will amount to 1.9 billion SEK. The corresponding contribution to the county council will be 0.6 billion SEK this year.

The gross regional product of the County of Värmland was 65 billion SEK in 2003.

1.5.2 *The County Administrative Board*

In the middle of the 17th century, Sweden was divided into new administrative units called län (counties). Each county has its administrative board. It represents the state and answers directly to the national government. Previously, the county governor was the representative of the king in the county and simultaneously represented the county in front of the king and the government.

Today, the county governor is appointed by the national government. Originally, the main tasks of the county administrative board had to do with control and taxation.

The main tasks of the county administrative board today are to take responsibility for regional development and to act as a supervisory authority. The board plans for regional development and produces programmes for sustainable growth, infrastructure and communications, and the environment. It distributes government grants, farm support, and structural funds from the EU. In its role as a supervisory authority, the board ensures that all rights and duties decided on by the national parliament will reach all citizens no matter where they live in the county. It also makes sure that laws concerning, among other things, the environment, food handling, animal protection, commercial traffic, cultural heritage, and hunting are abided by. The county administrative board also issues permits in these areas (Jonhäll, Bo. *Regional Demokrati: Skåne och Västra Götaland. Sävedalen*: Warne förlag. 2004).

For the implementation of the Regional Growth Programme, the County Administrative Board of Värmland has, in 2005, a budget of 110 million SEK at its disposal. Of these, 49 million are earmarked for projects within the five focus areas of the programme. The largest share, 21 million, is to be used in the focus area Industry and Commerce. Businesses in the county have the possibility to apply for contributions to new investments, education, and research and development. 55 million SEK have been earmarked for this purpose.

A review of the administrative division and of the tasks of the regions is carried out by the so-called Ansvarskommitté (literally, the ‘responsibility committee’) and the Organisationsutredning för regional tillväxt (‘the organizational survey for regional growth’). Both investigations can result in proposals that would affect the administrative division and the distribution of authority among public institutions. The task of the Ansvarskommitté is to examine in how far the current social organization is able to comply with public welfare objectives. Changes in the organization and in the distribution of responsibilities are to be suggested where this is motivated. The main objectives include a strengthened democracy, increased insight and influence, and improved possibilities to call officials to account. The task of the Organisationsutredning för regional tillväxt is to propose an organization for the implementation of the EU policy of economic and social cohesion during the programme period 2007-2013 in Sweden.

Other major, national authorities with a presence in the region are the County Employment Board (supply of labour), the Social Insurance Office (health insurance), the National Road Administration (roads), the National Rail Administration (railways), and Karlstad University, which, as a matter of fact, is a state institution as well.

1.5.3 Municipalities and county councils in Sweden

One of the unique aspects of the Swedish municipal system is that municipalities, county councils, and regions are responsible for a large share of public service and that they enjoy a high degree of autonomy as well as the right to collect taxes from their inhabitants. However, in Sweden, unlike in many other countries, real estate tax goes to the state, not the municipalities. The division of responsibilities is rooted in a long tradition of decentralization. The municipalities are very free to choose how to organize their work. This autonomy makes local adaptations to the individual needs of the municipalities and county councils possible (*Swedish Municipalities and Regions*, forthcoming in 2005).

County councils have existed in Sweden since 1863. They were established partly as a counterweight to the king's county administrative boards and were to look after the development of the county, from communications to "public order and safety" (Jonhäll, Bo. *Regional Demokrati: Skåne och Västra Götaland*. Sävedalen: Warne förlag. 2004). Nowadays, the county councils are directly elected regional political bodies. The municipalities and the county council have, since the early 1990s, a joint responsibility for nursing and health care. Members of the municipal and county councils are elected every fourth year, at the same time as the members of the national parliament.

1.5.4 The County Council of Värmland

The main task of the County Council of Värmland is to provide health care in the county. Since the council is one of the owners of Värmlandstrafik ('public transport in Värmland'), it also concerns itself with issues of public transport. It also decides on certain educational matters since it is the parent body of five folk high schools, which provide general education, qualify people for university studies, and pave the way for a professional education. Previously, the county council also took political decisions on regional development, culture, economic development, and tourism. However, the responsibility, administration, and funds for these issues were transferred to Region Värmland in 2002. The County Council of Värmland has an annual turnover of 5.5 billion SEK. Its contribution to Region Värmland amounts to 100 million SEK.

1.5.5 The municipalities

The number of municipalities in Sweden was 290 in 2003. Värmland comprises 16 municipalities today. Among other things, the municipalities are responsible for physical planning (including land utilization), pre-, primary and secondary schools (both those providing professional training and those preparing for higher education), some nursing and health care, and, together with the county council, regional public transport. Among the tasks that the municipalities in Värmland take on voluntarily are economic development and cultural activities. The commitment of the municipalities in adult education, on both primary and secondary school level, deserves to be mentioned specifically. Advanced Vocational Education and Training is a new form of professional education that is adapted to the needs of the business community and for which the municipality is the parent body.

The state has committed the municipalities to act as authorities in different areas, e.g. social services, building permits, and land surveying, where the local political leeway is limited. The

state also has considerable influence on municipal activities, e.g. in the form of national curricula and the introduction of upper limits for preschool tuitions. At the beginning of this millennium, about 15% of the total budget is used for areas where the municipalities are autonomous while approximately 85% go to nationally regulated areas, especially schools, welfare of the elderly and disabled, and social services. The municipalities in Värmland have an annual turnover of 17,2 billion SEK.

1.5.6 Region Värmland – association of local authorities

Region Värmland was founded in 2001. The aim was to form a common body for regional development for the municipalities and the county council. Region Värmland is led by an indirectly elected executive board for which the county council appoints a third of the members and the municipalities two thirds. The task is to initiate, coordinate, and support efforts in the municipalities and the county council that aim at a positive development of the region. Region Värmland is also expected to function as the members' common representative in these issues (from the constitution (29 September 2000) and the Annual Report 2002 of Region Värmland).

Important areas of work include: business sector/labour market, communication/infrastructure, education/supply of competence, nursing, health care, and public health, environment/sustainable development, and culture and leisure. Region Värmland is the parent body of several foundations, including the Värmland Opera, the Foundation Värmlands Museum, and the Tourist Council of Värmland, and, together with the state, a joint owner of ALMI Företagspartner Värmland AB. (The latter is a regional company supporting the growth and development of small and medium-sized businesses and promoting innovations.) Region Värmland is also practically involved in the following areas: archives, libraries, culture and media, design, and energy.

According to the budget for 2005, the allocations for regional development efforts amount to approximately 18 million SEK. Fixed allocations for own and external activities falling under economic development amount to 12 million SEK. Corresponding contributions to cultural activities are 58 million SEK.

Region Värmland's work is financed primarily by the county council, which contributes over 100 million SEK. The contribution of the municipalities is 10 million SEK in 2005. The members, i.e. the 16 municipalities and the county council, have the possibility to apply to the government for converting Region Värmland into a regional agency for cooperation. Such a change would imply that the responsibility for regional development, a part of the allocations for this purpose, and the administrative responsibility for some of the EU structural fond programmes are transferred from the state-controlled County Administrative Board to the municipal agency for cooperation, Region Värmland. Preparations for such a change are in progress, with the aim of completing it in 2007.

1.5.7 Changing government structures

The regional level of the political organization for all of Sweden is currently under review and changing. For Värmland, this means that there are currently three main stakeholders that are responsible for the running of the county. They derive their authority from different sources: the County Administrative Board from the state, the County Council from the citizens of Värmland, and Region Värmland from the municipalities. The distribution of responsibilities between these three stakeholders is partly overlapping and partly changing.

1.5.8 The Regional Growth Programme

The regional growth programme Sustainable Growth in Värmland, Programme for 2004-2007 (cf. the appendix) and Partnerskap Värmland ('Partnership Värmland') are the principal instruments of the county to coordinate efforts for a sustainable development of the county on a local, regional, and central level. The programme lists five focus areas (Governance, Competence, Living Environment, Mobility, and Industry and Commerce) and fifteen strategies. Five challenges have been formulated in a plan of action, namely Strategic Governance for Cooperation, Innovative Clusters, Raise the Educational Level, Connect Värmland, and The Oslo-Stockholm Corridor.

It is estimated that in 2004, about 1.5 billion SEK were used in efforts related to the growth programme. Slightly less than half of this was used to finance efforts in the focus area Industry and Commerce, and a third was used for Competence. By contributing 40% of the budget, the state was the most important financial backer, followed by private companies, the municipalities (including Region Värmland and the County Council), EU structural funds, and others.

According to a questionnaire-based study by Nutek, the Swedish Agency for Economic and Regional Growth, of the regional partnerships in Sweden, the Värmland partnership clearly has a more-positive-than-average attitude vis-à-vis the planning process, cooperation within the county, and the contents of the own programme. A similar study has been carried out within the county, focusing on the persons who were part of different groups working with the development of Värmland's regional growth programme. All respondents from the work groups and the partnership feel committed and think that they have been able to influence the work. The finished growth programme receives high marks across the board. In general, there exist different interpretations of, and attitudes to, the concept of 'the horizontal dimensions'. The Årliga VärmlandsMötet ('the Annual Värmland Convention') is an event that practically all respondents have a positive attitude to.

1.5.9 Partnership Värmland

Partnership Värmland consists of politicians representing Region Värmland, the County Council, and Karlstad Municipality, as well as representatives of the business community, labour organizations, Karlstad University, the County Employment Board, and the County Administrative Board. The county governor assumes the chair. The task of the Partnership is to be the joint "owner" of the Regional Growth Programme. This means pushing for, communicating, and following up the implementation of the programme. The Partnership is thus no formal decision-maker. The Regional Growth Programme is of great importance to the planning and daily work of the members of the Partnership. The County Administrative Board plans its budget and makes decisions concerning the distribution of funds, e.g. from the EU structural fund programme, in accordance with the focus areas of the Growth Programme. Region Värmland and its members use the programme as a point of departure for their planning, daily work, and the distribution of development funds. The Värmland office of the Swedish Trade Union Confederation has formed five work groups, one for each focus area, and works actively for the implementation of the programme. Karlstad University uses the programme both within the university and in contacts with the surrounding communities. The Chamber of Commerce got more than fifty companies engaged in the development of a plan of action for the focus area Industry and Commerce and also runs a number projects in the area.

1.5.10 The 'Regional Competence Council'

The Regional Competence Council provides an arena for information exchange, development, and lobbying in the realm of education. Important issues include matching and bottleneck

problems on the labour market, the supply of competence, and a common arena for development in Värmland. Members include the County Employment Board, Region Värmland, the County Administrative Board, Karlstad University, the National Agency for School Improvement, the parties on the labour market, and others. The county governor assumes the chair.

1.5.11 Other partnerships between public, private, and special-interest groups

In and around Värmland, there are more than 250 companies that represent different lines of business (paper and pulp, construction and maintenance, engineering, and technology consulting) while their main activities are related to the forest industry. These companies have formed a couple of clusters: The Paper Province (or The Cluster of Pulp and Paper Technology) and The Graphic Valley. These, in turn, have joined forces in the initiative of The Packaging Arena. This is a partnership for the best-developed innovations system in Värmland. The idea is to gather the world's best packaging competence and to offer it on a global stage. The Packaging Arena is an interesting example of how resources and management structures cooperate on different levels. Further initiatives for clusters can be found in the areas of steel and engineering, IT, indoor climate technology, and food and meals. Several of the above cooperate with each other (see appendix 2). There are also a number of cooperation groups in the areas of e.g. communications and infrastructure, international issues, information and marketing, equality, and physical planning, as well as groups working with various social issues.

1.5.12 Other

Physical planning on a national level is poorly developed because of the Constitution. The best instrument for physical planning in Sweden is the comprehensive plans of the municipalities. This means that the municipalities have a sort of planning monopoly in this area. The county administrative board can appeal the municipalities' plans.

2 CHARACTERISTICS OF THE HIGHER EDUCATION SYSTEM

2.1 Overview of the national system of higher education

2.1.1 *Dominant characteristics of the Swedish higher education system*

University education in Sweden is provided by universities and university colleges. There are 14 state universities and 22 state university colleges in Sweden, as well as three institutions with individual parent bodies. There are, furthermore, ten small university colleges, or 'independent programme providers', who have the right to provide undergraduate education and are partly financed by the state. A number of programme providers with the right to award the qualification of psychotherapist may be added to this list.

According to the Higher Education Act, the main task of the universities and university colleges is to provide education, carry out research, cooperate with society at large, and provide information about their activities. Higher education and research are mainly financed by the state, and a large part of state-sponsored research takes place at universities and university colleges.

2.1.2 *The size of the higher education system*

The number of students in undergraduate higher education, converted into full-year students, was 302,000 in 2004. The 1990s were characterized by strong expansion, and the number of students was thus twice as high in 2004 as in 1991. In the last five years, it is especially the social sciences, nursing, and the teacher educations that have expanded. Previously, expansion took mainly place in the technical and natural-science educations. Artistic subjects, particularly design and media, have also grown strongly, though their total share of higher education is small.

The government has set an overall objective for higher education on the national level: half of the persons born in a given year are to begin a tertiary education by the age of 25. The number of 19-year-olds will increase by 30% between 2005 and circa 2012. This increase obviously has ramifications for the 50% goal, and in order to reach it, another 15,000 places for beginners must be created. It is also necessary that the recruitment base for student intake is broadened and that different types of flexible teaching and learning are strengthened in the higher education system.

In 2004, the distribution of students according to the fields of education was as follows:

- social sciences	31%
- natural sciences/technical subjects	30%
- humanities	14%
- medicine/care	13%
- teaching	10%
- arts	2%

Nowadays, no direct requirements analyses are carried out, at a national level, that concern the distribution of students across the fields of education and that would have an impact on the government's instructions to the education institutions. In connection with the reform of higher education in 1993, this steering system was abandoned in favour of more demand-based planning. While the instructions may say that more natural-science/technical education or more teacher education is needed, it is the institutions, with their close contact to students, upper secondary schools, local labour market agencies, and interested parties at the regional level, that are responsible for the choice of programmes and courses. Nationally, the results are followed up by the National Agency for Higher Education, in a broad quality evaluation stretching over a six-

year period. During this period, all programmes and courses undergo an evaluation during which their use to the region is also taken into account. Where programmes are failed, subjects lose the right to hold examinations and courses are cancelled.

The share of women in higher education has increased continuously. In 1976, this share was 46%, but the reform of higher education in 1977 caused a significant rise. The educations in nursing, which attract many students, and the disciplines that were made part of higher education were strongly dominated by women, and the share of women in higher education rose to 53%. Since then, the share of women has continued to rise and reached 60% in 2004, although there are very large variations between different educations and institutions. The share of women at Karlstad University was approximately 65% in 2004.

About 63% of the students study at state universities and about 31% at state university colleges. The rest are enrolled in educations by individual programme providers. Half of those studying at universities and university colleges in Sweden are over 25 years old. A third are over 25 when they commence their studies.

The number of doctoral students was about 19,700 in the autumn of 2004, 47% of which were women.

Since the National Agency for Service to Universities and University Colleges is responsible for the coordinated admission to higher education, it is able to compile statistics over the students' demand for different educations. As to the *labour market's* demand for education, the education institutions are to some extent responsible for meeting it. The task of higher education institutions to cooperate with society at large offers the possibility to gain knowledge of the labour market's need for competence. The National Agency for Higher Education is also commissioned to provide an overview of the labour market's needs and to relate this to the dimensions of the programmes. Where a shortage arises, the government may adopt special measures. In recent years, this has happened, for example, to satisfy the demand for competent school teachers.

2.1.3 The governance of, and the regulatory framework for, the higher education system

In Sweden, it is the National Parliament and the Government that have the overall responsibility for higher education and state-sponsored research. This means that it is Parliament and the Government that decide on regulations, objectives, guidelines, and the distribution of resources in higher education. Parliament decides on laws regarding higher education, e.g. the Higher Education Act and the Law about the Right to Award Certain Degrees. It also decides on the principles for the allocation of funds to undergraduate tertiary education, research education, and research. Parliament decides on the existence of state higher education institutions and on the creation of new ones. Decisions about the size and use of the annual allocations to universities, university colleges, authorities, and research councils are also made by Parliament.

The Government issues ordinances regulating the activities of the state authorities and institutions. Once a year, the Government sends an official regulatory letter to each institution where the objectives, direction, and allocations for its activities are indicated. In the section on allocations, it is indicated which funds the institution has at its disposal, how large they are, and which conditions apply for their use. The highest amount Karlstad University can receive for undergraduate studies in 2005, which depends on student enrolments and achievements, is 452 million SEK.

The Government may present the education institutions with objectives concerning the number of degrees that should be reached in a certain programme. In recent years, such objectives have been

formulated for master of science in engineering, nurses, and teachers, among others. All universities and university colleges with the right to award doctoral degrees also receive allocations for research and research education, distributed according to area. Karlstad University has received 147 million SEK for these purposes in 2005. The Government may formulate goals for the number of doctoral degrees as well. Other higher education institutions receive funds for research and artistic development in the form of a special allocation. Universities and university colleges can also get external funding from e.g. research councils, foundations, municipalities, county councils, and private enterprises.

The official regulatory letter mentioned also contains regulations applying to all universities and university colleges, including objectives, feedback requirements (how and when – usually in connection with the annual report), and special commissions.

Universities and university colleges have to adapt their choice of courses and programmes to both the students' demands and the needs of the labour market. The fields in which the institutions may provide education are decided by the Government, which also formulates quantitative goals concerning the number of students taking a degree for a limited number of educations. One of the special assignments that universities and university colleges may receive from the Government is to provide education in a certain area or education leading to a certain degree. However, responsibility for the form, contents, and size of the educations resides mainly with the education institutions themselves.

2.1.4 Tertiary education policy

In Sweden, it is the Government that develops and formulates tertiary education policy on the basis of reports and comments. A public report may be ordered for this purpose, e.g. from the National Agency for Higher Education. This agency answers directly to the Government and is responsible for quality evaluations, supervision, statistical follow-ups, and information in higher education. The Agency also contributes material on the basis of which work and processes in the higher education sector can be changed, improved, and updated. Since 2001, the National Agency for Higher Education has been commissioned to evaluate, within a six-year period, all subjects and programmes at the HEIs of the country. Both undergraduate and graduate studies are to be assessed, including all programmes leading to a professional degree.

Universities and university colleges are largely financed through state funds. The allocations for undergraduate education depend on the number of students and their achievements. Parliament also decides on the maximum amount of money a university or university college may receive in a year. Universities, and university colleges with so-called 'scientific areas', also receive allocations for research and research education. Other university colleges only receive allocations for research.

2.1.5 Characterization of inter-institutional relationships – cooperation, competition, market planning

The idea behind the system for allocations of funds to education institutions that is in place since 1993 was that universities and university colleges adapt their choice of educations to the students' demands. In recent years, however, the institutions have more and more been expected to also adapt this choice to the needs of the labour market. Within limits, the institutions themselves may plan and design high-quality education. Since the allocation of funds to the institutions is based on results in the form of student enrolments and achievements, they have invested in a broad choice of educations in order to recruit many students. This system has stimulated competition between the institutions. In recent years, however, there have been political signals that

universities and university colleges should cooperate more with each other while creating a distinctive image for themselves by focusing on areas where they can best provide high-quality education.

2.1.6 Dialogue between ministries concerned with regional development

In Sweden, no decisions are taken by individual ministries. All decisions are taken collectively by the entire government. Therefore, joint drafts are to be prepared for the Government Offices according to fixed routines. All concerned can then give their feedback to the ministry responsible.

2.1.7 Regional development and the expansion of higher education

Due to the expansion of higher education and the building of at least one university or university college that functions as a centre of force in each county, more people than ever before now have the chance to get a tertiary education. For several decades, society's expectations have been high with regard to the role of universities and university colleges in a growth perspective. During the expansions of the 1990s, the Government's ambition has been to have a strong HEI in each county. The regional imbalance with respect to the share of persons proceeding to higher education has since been much reduced (Sarback, p.18). "Due to the expansion of higher education and the allocation of regular research funds to all institutions, the possibilities of the latter to contribute to regional development have been improved. The task of the institutions to cooperate with society at large, apart from doing research and providing education, also contributes to this" (government bill 2004/05:80). Through their presence, universities and university colleges help to make the region attractive for companies as well as well-educated labour. At the same time, it should be stressed that higher education institutions have a national responsibility, even if they are active within a certain region.

2.1.8 Does the government impose formal requirements concerning regional involvement?

It is part of the mission of HEIs to cooperate with society at large, which also includes contributions, in the institutions' areas of responsibility and expertise, to the achievement of regional development objectives. The same regulations and allocation principles apply to the entire Swedish higher education sector, but it is the local and regional conditions that determine the forms and expressions of regional cooperation.

2.1.9 Policies for fostering the regional role of HEIs – collaboration with industry, government, and civil society

The duty to cooperate with civil society forms the basis for directly influencing the regional role of higher education institutions. The forms of this cooperation vary with the local and regional conditions. One example of how the HEIs' regional role has become clearer in the last ten years is their involvement in the regional growth programmes. These programmes are the result of a process where the competences and contacts of the university or university college are made use of to an ever larger extent.

In many different contexts, the great importance of universities and university colleges for growth is emphasized. A number of foundations, authorities, and research councils provide project funds to stimulate regional cooperation.

As an example of another way to influence regional matters, it can be mentioned that Umeå University and Luleå University of Technology have been commissioned to provide decentralized education. The aim of this assignment is to ensure that persons living far from the universities in northern Sweden have access to higher education. In 2002, the Swedish Net University was

founded for students for whom on-campus studies are not an option. A broadened recruitment base has been another objective.

2.1.10 Balancing the different roles of HEIs

In e.g. reports to the government, universities and university colleges have signalled that the expectations of stakeholders in the region can occasionally be very high. It is not always easy to reconcile them with Parliament's and the Government's demands concerning the long-term increase of knowledge in society. Since the Swedish higher education system is decentralized to a significant degree, it is up to the HEIs to balance their different roles, including the duty to cooperate with society at large.

For Karlstad University, the reality is that missions have been formulated at three levels, i.e. the national, the regional, and the local level. Formally, it is the national level that is entitled to issue the mission statements, and Karlstad University is part of a national system for research and education. However, the regions where universities and university colleges are located have a legitimate interest in using the national resources for their own development. The localization in itself is, after all, a way of supporting the region. There are also local parties trying to get the most out of the fact that the university is located in their municipality. The university thus has a national, regional, and local role to play, and this may occasionally lead to tensions and discussions.

Apart from the state, there exist a substantial number of other organizations, councils, and foundations that provide resources. Foundations controlling large amounts of money have been commissioned to support young universities and university colleges. The Stiftelse för kunskap och kompetensutveckling (KK-stiftelsen; 'the Knowledge Foundation') is such a foundation. In the period 1994-2004, it has transferred about 100 million SEK to Karlstad University. The support of the KK-stiftelse has to be provided in collaboration with the business community, and the expected result is to enhance the competitiveness of business. Verket för innovationssystem (VINNOVA, 'the Swedish Agency for Innovation Systems') is commissioned to promote sustainable growth through the development of effective innovation systems and to support applied research. Within the framework of the so-called Vinn Excellence Centres, VINNOVA has chosen to support a ten-year research project on public transport at Karlstad University.

Karlstad University's ambition is to cooperate with several other councils and foundations, e.g. Vetenskapsrådet ('the Swedish Research Council'), MISTRA (the 'Foundation for Strategic Environmental Research'), the Vårdal Foundation for Health Care Sciences and Allergy Research, and the Swedish Foundation for Strategic Research. One clear ambition is to convince other regional and local companies, organizations, and authorities to invest in the knowledge creation of the university and in its system for knowledge transfer, in order to contribute to the development of the regional innovation system.

The opportunities to find partners and to apply for resources from EU funds and framework programmes are important factors. For example, the subject of computer science has been successful in the area of data security and participates now, together with IBM and others, in comprehensive, global research projects on the topic.

EXAMPLE:

Research supported by the EU

Prime – Protecting Personal Integrity in an IT World Full of Opportunities

1 March 2004 marked the beginning of an EU-funded project on the protection of personal integrity in connection with the use of IT. The 10-million-euro research project involves more than 20 organizations from nine countries and bears the name Prime: Privacy and Identity Management in Europe. Two researchers from Karlstad University, Professor Simone Fischer-Hübner and Associate Professor John Sören Petersson, participate in the project, as well as two doctoral students: Christer Andersson from computer science and Ninni Danielsson from informatics. Karlstad University receives over four million SEK, among other things for tests of the user-friendly design of the technology intended to protect the users' personal integrity on, for example, the Internet. Professor Fischer-Hübner also functions as the coordinator of the Prime project and oversees the writing of a report on the integration of legal, socio-economic, and technical perspectives on integrity-protecting identity handling.

Fidis – a common European standard for your identity

In the European information society, identity is no clearly defined term. In virtual reality, one can assume whatever identity ones wishes, be it for pleasure, in business transactions, or for one's own safety. The possibilities of adopting several different identities are better today than ever before and challenge our traditional concepts of individuals, integrity, and identity. At the same time, different European countries have their individual systems to control identity: for example, while an identity card is mandatory in Germany, one does not want to know of such a system in Britain. Fidis is a multidisciplinary network with participants from several countries. It provides a meeting point for the research traditions of several countries and gathers European expertise around a common theme: formulating the requirements for a future system of identity handling and for the necessary technical and infrastructural support systems.

2.2 Regional perspectives on national policy

Karlstad University forms part of the national higher education system, recruits students on the regional, national, and international levels, and carries out research in national and international networks. The university is not an explicitly regional concern, but obviously represents a very important resource to the region, just as the region is an important resource to the university. The university has chosen to define its region in terms of the localization of all its partner organizations and companies.

The allocation of resources to the university in general, and to education, research, and cooperation with civil society in particular, has led to a safer supply of competence for the companies in the region, as well as better platforms for their development work. For example, Karlstad University is partly responsible for the fact that the companies of the region have been able to increase their patent applications and licences to a considerable degree (Roland Andersson, 2004). The approximately 10,500 students at the university have positive effects on the local community. Universities and university colleges are assumed to be a sort of motor for regional development. Conversely, the commitment of companies and public stakeholders is of great importance to the development of the university.

2.3 The regional dimension of higher education

Karlstad and Värmland became part of the higher education system in 1967, when a branch of Göteborg University opened in Karlstad (cf. section 0.4). At that point, the aim was to improve the supply of competence to the Swedish primary school system. After another reform of higher education in 1977, Karlstad University College was founded. This autonomous entity continued to evolve with more social-science, natural-science, and technical educations, in accordance with the needs of the region. Research and research education were carried out on the basis of agreements with other education institutions that had the right to award degrees in research education. In 1988, the Board of Karlstad University College adopted a plan of action with the goal of becoming a full university by 2000. The application to be evaluated for this status was sent to the Government in 1997, and Karlstad University College became a full university on 1 January 1999. In the Government's decision, it was pointed out that the new university ought to create a clear image for itself and emphasize education and research in those areas where performance already was good or where good performance could be achieved. The needs of society and the identification, by the research community, of promising new areas of research should determine the university's future profile and the efforts to strengthen its areas of activity.

3 THE CONTRIBUTION OF RESEARCH TO REGIONAL DEVELOPMENT AND GROWTH

3.1 National conditions for supporting research and innovation

The Higher Education Act has been modified so as to also take up cooperation with society at large. In connection with this, Parliament passed a number of overall objectives and general guidelines for research and research policy (Forskningspropositionen – ‘the Research Bill’). Apart from the objective that cooperation with society at large should increase, the bill also included guidelines and objectives saying that research outcomes should be put to use and contribute to growth. Among other things, Parliament decided that research ought to:

- contribute to economic development, efficiency in industry and commerce, and rising employment
- be put to use
- meet the needs of society.

In the official regulatory letters to universities and university colleges, it is noted that in comparison with undergraduate education, research is generally under less direct control. However, for several years now, the letters have explicitly demanded reports concerning e.g. the efforts made to promote multi- and inter-disciplinarity, and education institutions have also been required to indicate changes in the number of professors, their gender distribution, and their disciplines. For 2004, there is also the requirement for universities to report their self-assessment of how their work has contributed to the objective that “universities and university colleges carry out internationally competitive research and artistic development work”.

In 2004, Karlstad University received 227 million SEK for research and doctoral education and another 32 million for contract research, totalling 259 million. State allocations were 146.5 million SEK; state agencies provided 39.3 million, foundations 26.1 million, county councils 14.7 million, research councils 10.3 million, private companies 11.3 million, and others 11.7 million SEK.

The Higher Education Act and the Higher Education Ordinance contain regulations concerning the organization of a university, e.g. concerning the university and faculty boards. Apart from these regulations, the education institutions are relatively free to decide on their own structure and organization. They can thus also choose to form centres whose aim it is, among other things, to make and maintain contact with external partners, e.g. in the business community.

A centre usually comprises several disciplines and research areas, which gather around a theme. In its bill *Forskning och förnyelse* (‘Research and innovation’), the Government pointed to centres as an ever more common form of cooperation. It was also noted that in some cases, centres cooperating with the surrounding society gave rise to business start-ups, industrial projects, or research schools. To organize activities in a centre can imply that research becomes more visible and comprehensible to society at large, which in turn promotes cooperation in different forms. Certain HEIs also choose to integrate the cooperating partners in the centres, which often is an attempt to make the external commitment more permanent.

Over the years, Parliament and Government have supported different forms of cooperation, such as the so-called competence centres. This has happened by commissioning one of the research-funding organizations to begin allocating funds with the aim of achieving a more long-term cooperation between the HEI and business. Today, there are 28 competence centres at 8 institutions, and VINNOVA, the Swedish Agency for Innovation Systems, is the agency

responsible for them. Competence centres as a form of cooperation have been evaluated in positive terms by the institutions, in interviews as well as questionnaire-based surveys. The Swedish National Audit Office, too, has adopted a positive attitude towards competence centres, and evaluations carried out for VINNOVA by international researchers also indicate that the ventures have been successful. An important reason for this is that the investments have had long-term objectives. Therefore, VINNOVA has decided that competence centres as an organizational form will continue to exist, though now under the label of VINN Excellence Center. Within the framework of these Vinn Excellence Centers, VINNOVA supports a ten-year research project on public transport at Karlstad University.

The management of the HEIs also invests a lot of resources into networking, with the aim of getting external parties involved in the work of the institution and in order to attract external research funds of different kinds. The objective of this networking is often to increase society's knowledge of the institution, and vice versa, which in itself is an important aspect of the mission to cooperate with the outside world. It can further be assumed that the work at the management level helps to promote cooperation in concrete projects in research and undergraduate education.

3.1.1 Adjunct professors

A university must have the possibility to base its research and education activities on knowledge other than that represented by the university's own specialists. People working outside the university often have important knowledge of how research outcomes are used in practice, as well as insights into society's need for scientific knowledge. In order to satisfy the need for knowledge exchange between the university and society at large, the university can employ adjunct professors. At Karlstad University, there are adjunct and guest professors attached to, among other things, research in process chemistry in the forest industry, information technology, and to service research and law.

An adjunct professor mainly works outside the university. Even if the time invested is limited, the university gains access to the adjunct professors' entire competence and contact channels. The adjunct professors, in turn, are partly employed by the university and thereby come into direct contact with scientific development. They can also establish permanent working relationships with the teachers and students of the university. See also chapter 6.4.

3.1.2 Cooperation with industrial research institutes

Among the organizations that help to put research outcomes to societal use are the industrial research institutes. The Swedish industrial research institutes carry out their own research, refine their own and others' research outcomes, and supply knowledge, especially to companies. The aim is to strengthen competitiveness and to contribute to development and growth. The institutes do not fall within the universities' area of responsibility, but R&D projects can be carried out in conjunction with universities, and researchers may be attached to both organizations. The Government has said that it would like to see increased cooperation between industrial research institutes and HEIs.

3.1.3 Contract research at HEIs

Contract research, as opposed to research financed through grants, implies clear demands for counter-performance. The research can often be put to direct use since there is a well-defined demand for its results on the part of the client. Ideally, contract research also implies that clients and researchers discuss the assignment, which in itself promotes cooperation. Through knowledge transfer from the client, the assignment can also help to inform the researcher's more independent research.

3.1.4 *The government authorities' influence on contract research*

Neither Parliament nor the Government have discussed contract research much in recent years. However, in a government bill in 2000, contract research was mentioned as a form of cooperation. Contract research is also mentioned every year in the common regulatory letter to universities and university colleges, namely as an activity that HEIs may pursue for a fee that they can use at their discretion. The Government also makes it clear in the letter that chargeable activities such as contract research have to be accounted for separately.

In the above-mentioned bill, the Government noted that there are problems with contract research and the official secrets legislation applying to state authorities. The Government finds that when it comes to contract research and research collaboration, the extent of secrecy is very important for a functioning cooperation between the different stakeholders. It has to be weighed, however, against the principles of the freedom of research and public interest in the research activities of universities and university colleges.

3.2 National stakeholders in research and innovation

A number of stakeholders have the task to stimulate cooperation and dialogue between HEIs and the business sector. Among them are the following:

3.2.1 *The National Agency for Innovation Systems, VINNOVA*

VINNOVA was formed in 2001, in connection with the re-organization of Swedish authorities and research funders. The agency has developed into a strategic funder and actor in the Swedish innovation systems. By financing applied research based on the needs of business, society, and completely new areas with a good growth potential, and by developing effective innovation systems, VINNOVA contributes to long-term economic growth that is both ecologically and socially sustainable.

VINNOVA focuses especially on:

- more efficient interaction between universities/university colleges, research institutes, business, and the political/public sector in areas where the conditions for sustainable growth are judged to be particularly favourable
- stimulating research and development in unstable and risky areas that are estimated to have a great growth potential
- increased awareness and efforts when it comes to commercializing research results at universities/university colleges and research institutes

VINNOVA's activities also have an influence on policy when it comes to strategic thinking and innovation, not least in the regions.

3.2.2 *Teknikbro Foundations and Innovationsbron*

Up till 2004, teknikbrostiftelser (literally 'Technology Bridge Foundations') could be found in seven university towns from Luleå in the North to Lund in the South. The foundations contributed to an increased knowledge exchange between universities/university colleges and business. Starting in March 2005, the teknikbrostiftelser were converted into Innovationsbron AB (literally 'The Innovation Bridge Ltd'). This company is intended to help, at an early stage, with the commercialization of promising business ideas from the research and business communities.

The aim of Innovationsbron is to coordinate, stimulate, and strengthen the Swedish innovation system. Innovationsbron is expected to help researchers, innovators, and entrepreneurs with

business development and the commercialization of research results, as well as to intensify the exchange of knowledge and experiences between industry and HEIs. In Karlstad, the Inova Foundation is part of the Innovationsbron system (cf. section 3.5.7).

3.2.3 Nutek – The Swedish Agency for Economic and Regional Growth

Nutek is Sweden's national agency for issues concerning industrial development. Nutek's objective is to contribute to increasing numbers of new businesses, growing businesses, and strong regions – and to thereby promote sustainable economic growth in the entire country. Nutek:

- develops and disseminates knowledge, tools, and methods
- carries out and supports programmes in selected areas and develops new ideas within the framework of pilot projects
- supports and creates networks and alliances
- informs and guides entrepreneurs
- works with regional support to businesses
- carries out analyses and provides information to the Government on which the latter can base its decisions.

All this takes place in conjunction with other stakeholders, inside the country and outside.

3.2.4 KK-stiftelsen – the Knowledge Foundation

The aim of the KK-stiftelse is to strengthen Swedish research and to intensify contacts between HEIs and the business sector. This is done by developing, on the basis of business requirements, internationally competitive research at young universities and university colleges. In order to raise the competence in Swedish businesses, the foundation also supports research education.

Projects

The foundation supports specific research projects at the 18 new HEIs in Sweden. The projects are single, well defined research projects, aiming to strengthen the HEI nationally in a specific research area. The objective is to generate specific results relevant to the industry.

The reason for the program is to give HEIs an easy way to explore new areas of research or to build new platforms and strengthen existing research. Successful projects can have further support in order to develop a new research area. The projects can be multi disciplinary. All areas of research can apply for project support.

The share of the foundations support is maximised to 50% of the total project budget and the industry is expected to contribute with an equal share. The funding is maximised to three years.

Specific efforts

Forestry is one of Sweden's most important basic industries. In order to be able to compete on an international level, the forest industry must raise its level of competence and increase the number of employees with a research education. Therefore, KK-stiftelsen, in conjunction with the state, the forest industry, and the printing industry makes an effort to develop new research environments with a focus on the forest as a commodity.

In the years 1999-2006, half a billion SEK are invested in the development of new research environments at young HEIs in areas related to the forest industry. One precondition for receiving support is that the business sector contributes 50% of the total amount.

The investments have led to the following, among other things:

- At Karlstad University, a research programme on the coating and surface treatment of paper products is under development.
- In the area of printing technology, a special project company (Tryckteknisk Forskning AB) has been formed in order to carry out a research programme within the TryckTekniskForskning network.

Initially, the young universities and university colleges have not been able to fulfil the basic requirements for building profiled research environments. This is why KK-stiftelsen has supported major efforts to develop stable research platforms.

Platforms

The development of a platform means that the HEI and business together draft a research plan. Financial investments from the business side are not required at this point. The HEI forms a mentor group to supervise the development of the research environment. After a number of years, research is expected to have reached such levels that the HEI can apply for funds for developing a high-quality research profile.

One example of a platform is HumanIT, a research centre founded at Karlstad University in 1999 with the aim of adapting information technology applications to the actual needs of people.

Profiles

In order to strengthen Swedish research and develop the business sector, KK-stiftelsen supports the establishment of profiled research environments at young universities and university colleges. In such a profiling effort, the HEI develops, together with several private companies, a unique, internationally competitive, research concept. Then, a high-quality research environment is built on the basis of this concept. An example of a profile is “The New Service Economy” of the Service Research Center at Karlstad University. The basic idea behind this research profile is that economic development to an ever higher degree takes place in the service sector and that new services have become the “engine of growth”. Technical solutions, often based on information technology, make new services possible.

3.3 Regional needs and demands

Already in the past, research at Karlstad University has to some extent been developed in conjunction with partners in the region: educational science research in conjunction with the municipalities, forest industry research in conjunction with companies in the region, nursing-related research in conjunction with the County Council of Värmland, and social science research in conjunction with regional stakeholders (through Cerut, the Centre for Research on Regional Development).

To carry out research on the forest and on wood, paper, and steel is natural in a county such as Värmland. For several years now, the university has cooperated with the forestry and steel industry in the form of common research projects. The aim is to develop the knowledge of

different materials and products, but also to study the role of the forest and of forest products in a sustainable society.

In chemical engineering, Karlstad University conducts research on pulp, paper, surface treatment, and printing technology. More than 25 doctoral students are involved in research projects focusing on the paper industry. Students in the engineering programmes also have the opportunity to do their degree projects at the Master's level within these joint projects. The original venture has been developed, together with the industry, into a joint effort in the realm of customer-oriented packaging development, an effort that is based on traditional industries, but focuses on future service research and design. Subjects like mathematics, physics, materials engineering, and chemistry also contribute to this form of knowledge creation.

Research on the properties and applications of tool materials is carried out in close cooperation with the manufacturing industry of the region and aims at developing wear- and damage-resisting tool materials. Five doctoral students are now devoted to these research assignments. Here, too, undergraduate students can participate in the form of degree and essay projects.

Research carried out in energy and environmental engineering includes futures studies of bio energy from a Värmland perspective, thermodynamics for the use of solar energy, more efficient energy technology, water planning, and principles and indicators for sustainable development. Several doctoral students as well as students at the Master's level are involved in these projects.

Miljöfocus is a multidisciplinary research group that has environmental research with a focus on the forest as its common theme. Among other things, the research is concerned with the water of woodlands and with the forest as a regional resource.

For a number of years, there has been successful cooperation between researchers in computer science and the regionally important branch of an international IT company. About ten research students are directly or indirectly dependent on this cooperation, as are students at the Master's level.

3.4 Karlstad University's research strategy

In Karlstad University's latest research strategy (2003), it is said that the university must be a dynamic and open university in the international knowledge society. This means that the university has to be sensitive and capable of responding to quick changes. At the same time, Karlstad University intends to defend its integrity and autonomous role in society (cf. section 0.5).

According to the strategy, Karlstad University is expected to contribute to the attractiveness and growth of the region, among other things by constituting the link to the international scientific community. The university is to be active and assume responsibility in the regional innovation system. Its routines must be such that undergraduate education, research, and doctoral studies are well connected while there is also close contact with the stakeholders in society.

An important aspect of the strategies for the development of research at Karlstad University is the profile areas one wishes to concentrate on. In these areas, undergraduate education, research education, and research are expected to support each other. The profile areas are:

1. Forest, environment, and materials
2. The communication and service society
3. Learning at school and at work

4. Regional identity and welfare
5. Gender Perspectives in society
6. Culture and creative art

The profile areas rely on strong subjects, which are largely identical to the subjects that have been prioritized and developed in terms of research and research education (Karlstad University's Research Strategy 2005-2008).

3.5 Interfaces facilitating regional knowledge exploitation and transfer

3.5.1 Introduction/Background

All regional partners agree that Värmland's ability to create and support entrepreneurs must be improved. This is also one of the priorities in the Regional Growth Programme. Karlstad University's Vision 2015 states that "openness and close cooperation with society at large are an integral part of our educations and research". The idea is thus that teaching and research can be developed by cooperating with the surrounding community, just as the community develops due to this cooperation.

An important aspect of Karlstad University's strategy is a good cooperative climate at the university that forms the foundation for innovative environments where the academic perspective can be related to e.g. industry and market needs. The cooperative and innovative processes are very much dependent on each other. Coordination and the creation of resources takes place on the strategic management level of the university and in conjunction with regional, national, and international partners.

Since 2002, Karlstad University has developed, in conjunction with regional partners, a strategy for knowledge transfer and commercialization. An analysis concerning the university's future strategies and plans of action for cooperation was carried out in 2002, and another analysis concerning the commercialization process and the development of incubators later in the same year. Both analyses included national comparisons and involved study visits to other HEIs.

In recent years, the strategy has been implemented in different ways, including the following:

- Cooperation and innovation issues have become part of the university's management agenda. Responsibility for strategies and processes has been assigned. (2002)
- Industrial competence has been added to the university's management. (2002)
- Creative meeting points have been established on campus, e.g. Designstudio Värmland. (2002)
- Support to the development of entrepreneurship and business (Inova) has been professionalized. (2004)
- Alumni networks have been established and developed. (2003)
- A website has been constructed as a support in the realm of intellectual property. (2004)

The majority of the above steps have been taken in conjunction with regional, national and, international partners.

3.5.2 The commercialization process

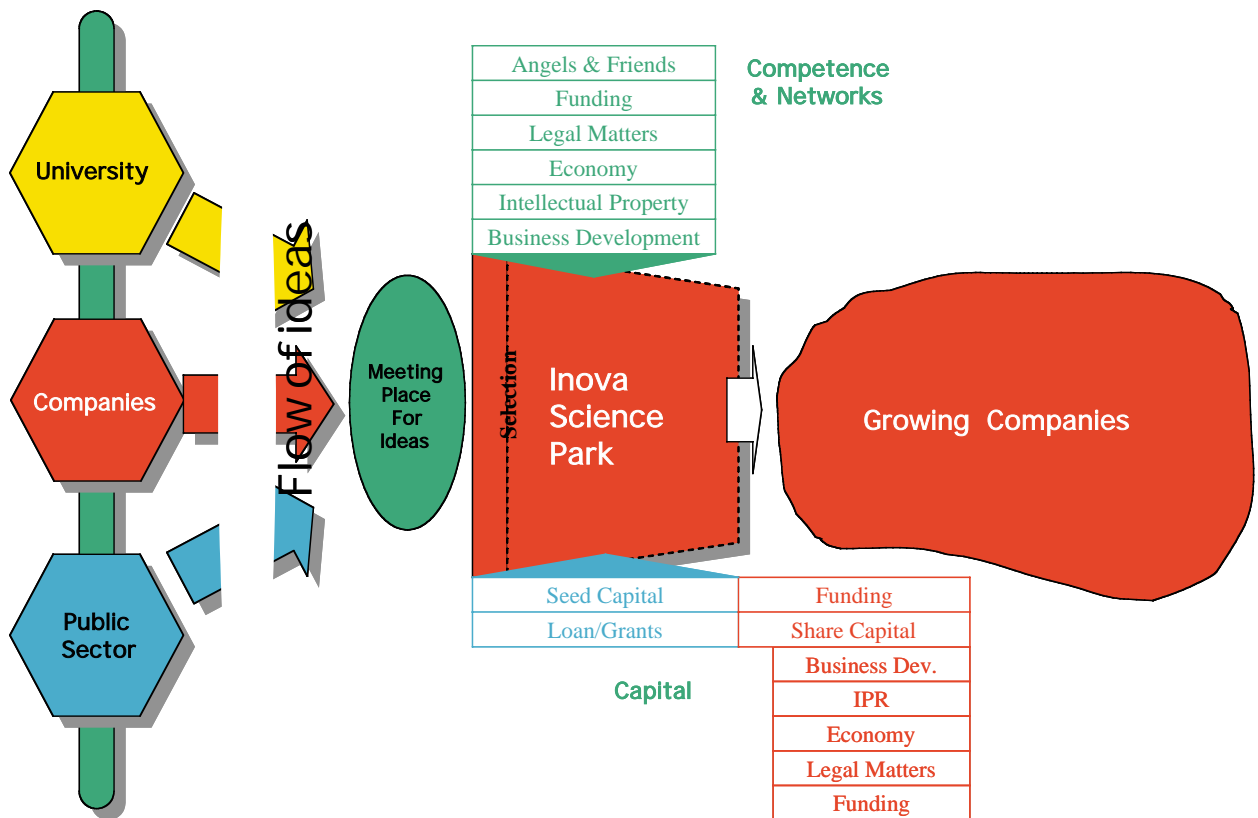
A large part of the research results are commercialized by the university's industrial partners via the different forms of cooperation that exist (doctoral students sponsored by the industry, Designstudio Värmland, contract research, institutional cooperation, etc). Another aspect of the

commercialization process is to lend support to ideas, so that they can be developed into business enterprises.

Karlstad University contributes to regional development with skilled labour, new knowledge, innovations, and entrepreneurship. Public and private regional actors, together with the university, have worked out a strategy and model for the stimulation of innovation, with the aim of developing and/or creating business. Important aspects of this strategy are openness and a clear focus on the customer (cf. figure 3.1). The university's role in this is to stimulate and support innovation in the early stages of the innovative process. It does this, among other things, through support systems for patent and licence issues, information and seminars, and direct guidance.

Other stakeholders (the Inova Foundation, industrial clusters, and companies) are responsible for the later stages, such as continued business development and market orientation. Their main task is to prioritize and refine the potential growth companies by focusing on the customers and providing access to future markets. Karlstad University, in conjunction with the other partners, participates actively in the planning and management of this entire process. This model has been developed following an analysis of existing systems (incubators) at Swedish HEIs and on the basis of the unique conditions at Karlstad University and in the surrounding community.

Figure 3.1 Supporting Entrepreneurship and Business Development



3.5.3 Research centres

Karlstad University has established a number of centres where multidisciplinary research is carried out. Their range of activities is broad, but their basis consists in the research competence attached to them. Cooperation is an integral part of their work.

Cerut, the Center for Research on Regional Development, works with regional development issues and maintains extensive interaction with the community at large. Apart from the university, it is backed by the County Council, the County Administrative Board, the County Employment Board, the Social Insurance Office, the Chamber of Commerce, and Region Värmland. The aim is to have a significant number of partners both in Sweden and abroad.

CTF, the Service Research Center, is the Nordic countries' foremost research centre focusing on management in the service sector. Its members carry out research in several disciplines, work actively in an international environment, and act as a link between research, business, and the public sector.

HumanIT is a research platform carrying out IT-related, multidisciplinary research and development in close cooperation with Ericsson and the Ninetech Group. The objective is to increase the value of modern information technology for ordinary people.

IKU, the 'Institute for Quality and Development in the Social Services', is a joint project of the municipalities in Värmland and Karlstad University. The aim is to make work in the social care sector more attractive. Attempts are made to link theory and practice, among other things through cooperation between social service employees, students, and teachers at the university.

Jämställdhetscentrum, the 'Centre for Gender Studies', is a multidisciplinary research group concerned with research, seminars, and undergraduate education in gender studies. Its activities also include evaluations, projects, and commission education.

NÄS, the 'Network for River Safety', is a joint project of Karlstad University and other universities and institutions carrying out research in the area. A network of interested parties (municipalities, authorities, and industry associations) is also linked to NÄS.

RUC, the 'Regional Development Centre for Schools', is a network of municipalities in the region and Karlstad University and works with development and learning. The idea is to create a meeting point for employees in the school sector, where different perspectives can lead to new knowledge in the realm of school development, teacher education, and research.

The mission of the Skapande centrum, the 'Centre for Creative Arts', is to constitute a meeting point for academic and artistic traditions and to develop knowledge from new perspectives.

3.5.4 Within the university

The process of professionalizing the support given to business and entrepreneurship (Inova's incubator) was completed in 2004. After this, the focus has been on stimulating research to generate ideas within the system. Since the university's research volume has risen significantly during the last five years while no efficient support system for the innovation process has been in place, chances are good of finding ideas that can be further developed. An intellectual property policy and a support system for patent and licence issues have been developed in conjunction with Linköping University. This includes communication channels as well as expert and network functions at the university in order to support researchers and other employees in the realm of IP.

The ability to communicate and reward good examples is very important, of course. The structure of Karlstad University's website has been altered and a newsletter was started in 2005 in order to spread good examples concerning commercialization. The different research centres at Karlstad University regularly publish new their own newsletters to their networks and the public. There are also open seminars and lectures, on campus or at local learning centres.

There are regular and frequent communiqués to the press about various research results, and the amount of news on the websites of the university and other stakeholders etc has increased in accordance with the volume of research at Karlstad University.

An analysis of comission education at Karlstad University was carried out in 2003-2004 and has resulted in new working methods and a new structure for this activity. Cf. also section 4.4.

3.5.5 *Drivhuset*

Stiftelsen Drivhuset (literally 'the Greenhouse Foundation') is a student initiative from 1993 and now provides permanent support at Karlstad University. Drivhuset helps students to carry out projects, start businesses, and develop ideas during their education.

Drivhuset wants to inspire students at Karlstad University to see entrepreneurship as a possibility and asset. The students are meant to have good opportunities during their studies to prepare themselves for, and transform their knowledge into, business activities. Entrepreneurship thus becomes an attitude that is about realizing one's ideas. The work of Drivhuset is completely free of charge for students and others with ideas.

3.5.6 *Designstudio Värmland*

Designstudio Värmland is a meeting place and neutral partner for the increased use of design methods in product and service development processes. It arranges workshops, seminars, lectures, and other activities and brings together parties with different experiences and competences. Meetings between researchers, students, and businesses are arranged, and knowledge transfer takes place in a structured and creative process. The foundation is linked closely to the education in innovation and design at Karlstad University.

Designstudio Värmland is a cooperating office of the Swedish Industrial Design Foundation (SVID), has Region Värmland as its parent body, and is run in cooperation with Karlstad University. Funding is also provided by the County Administrative Board of Värmland and the Alfa Foundation.

3.5.7 *The Inova business incubator*

The Inova Foundation was formed in 1994 by the business sector, the university, and public stakeholders. The foundation emerged out of the Hjärnbruket Foundation, which was formed already in 1987 and constituted an early attempt to promote innovation and entrepreneurship in conjunction with businesses and society. In the past, the foundation had incubator activities, especially for students. This structure started to be changed in 2002 because the conclusion of an international survey was that the region needed a more open process for business development. At the same time, Karlstad University has revised and developed its working methods for cooperation and innovation processes.

This means a professionalization of the commercialization process with a focus on supporting business and entrepreneurship (from the application to VINNOVA within the framework of the so-called Vinnkubator programme).

Since 2005, Inova is part of the national incubator programme of Innovationsbron, which means an exchange of experiences at the national level and improved funding.

Inova is open to ideas from the business sector, public stakeholders, and the academic sector. Since the restart in 2004, Inova has united regional stakeholders around a common focus on growth companies in Värmland.

Today, there are ten companies in the incubator – from the business sector, the public sector, and private innovators/entrepreneurs, and not least companies that commercialize research results. Inova's business philosophy is "open" also in the sense that it presupposes intense interaction between the projects/incubator companies and their clients/business partners.

EXAMPLE:

From speech therapist to doctoral student and maybe on to entrepreneur

In 1997, Karin Bengtsson started working as a speech therapist in the project Speech, Mouth, and Bite Functions in Children with Down's Syndrome.

In 1992-2002, the research group Handicap and Language at the Division for Educational Sciences at Karlstad University ran the project in conjunction with Umeå University, among others. Together with Iréne Johansson, who at the time was a professor at the division but is now self-employed, Karin worked with optimizing the participating children's speech development. One of the tools in the work was the so-called palatal plate, an aid that was previously used to stimulate a good motor function in and around the mouth of persons with e.g. weak muscles or difficulties in orienting themselves in the mouth. In this project, palatal plates were used with the explicit goal of supporting speech development, which meant that the project had to involve a great deal of product development. This work was carried out in conjunction with the participating children and the adults they relate most strongly to.

The palatal plate resembles a common plastic retainer. On it, there are different stimulating elements such as screws and buttons that lure the tongue and the lips to carry out certain movements. Karin worked intensively with development issues. The result was a new type of flexible palatal plate, which was presented to the public in 1998. The following year, Karin became a doctoral student of educational sciences.

As the palatal plate was improved, demand rose. It was usually prescribed by dentists, language therapists, and speech trainers. The idea was that many children should have access to a continuously improved product, which, however, had a fault: it was expensive and not everybody who needed one could get one.

As so often, chance played in, and when a frustrated speech therapist happened to complain about the expensive palatal plates to her husband, this was the beginning of a new process. The man contacted Karin to discuss the choice of materials and technology. He himself, if normally for entirely different purposes, used cheaper manufacturing methods that would also be appropriate for palatal plates.

Thus began the bumpy road to production and entrepreneurship, and in the spring of 2003, Karin and Iréne contacted Ingegerd Dirtoft of the Cooperation Committee. After consultations and discussions of the thoughts behind the new idea, the two were introduced to ALMI Företagspartner (cf. 1.4.6), which supported the project, also financially. The next step was Inova,

who contributed a project manager, advice, money, and office space in a creative incubator environment.

- In the first stage of the process, all development had taken place in conjunction with the clients; now the product was to be kept secret. This was completely new, but the support I received was absolutely necessary because I was interested in developing the plate, not in business, says Karin. But now it was about business, e.g. secrecy and economic agreements, and a patent application – in order to commercialize the product, legal expertise was required, which was arranged through Victor Isaksen at Inova. After more than a year's work, uncertainty, and the will to succeed, a patent application was filed in July 2004.

Karin and Iréne had an idea, but were concerned with function, not business. The attitude to the IRKA plate, as it was eventually called, was all the time relaxed, since a possible commercialization never was the main goal. The goal was a good product that functions well, not large-scale activities and entrepreneurship, and the driving force is still the wish to help the children.

Now still another step has been taken in that the industrial development centre IUC Wermland has financed a preliminary study of market potential and product development. At IUC, one could also produce a prototype of the IRKA plate since one could get access to a machine that may be used for possible future production.

There is a natural link between the work of the incubator and the industrial clusters that exist on the regional level. One example is The Packaging Arena. The stakeholders involved (the business sector, Broby Grafiska, and Karlstad University) and the creative platforms and meeting places that have been established (Designstudio Värmland, The Packaging Greenhouse, and Svenska Flexografi Institutet) cooperate naturally with Inova.

Since Inova only supports companies with a growth potential, clients are involved early in the projects. It is one of the preconditions for Inova to get interested. To find the dream client/business partner is one of the first steps in Inova's selection process. Through the Inova Advisory Pool and its network, Inova can open doors to both the business and the public sector. It is primarily in this way that the market potential of the project is ascertained. In this preparatory work, tools like network analyses, context mapping, brand communication, brand analyses, and sales training are used.

Karlstad University can, at an early stage, contribute with good cooperation with the business sector, which is a precondition for customer-oriented and applied research. There is also the Service Research Center (CTF), which actively contributes to a user focus in the multidisciplinary efforts of the university. This is an asset to Inova that has not yet been fully exploited.

3.5.8 Business clusters

Knowledge transfer from the university also takes place in the cooperation with existing industrial clusters and the organizations attached to them. This cooperation is especially well developed with the forest industry cluster and its organization, The Paper Province, and the IT-based cluster in the form of Compare Karlstad. Both the planning and realization of activities concerning information, meetings, innovations, start-ups etc are done in conjunction. As regards The Paper Province, there is an initiative in the realm of packaging that also comprises a graphic cluster in Sunne. This initiative is called The Packaging Arena (TPA):

Forest industry research and cooperation has in recent years developed into an initiative in the field of packaging. The packaging business in Värmland is dominated by large companies such as Stora Enso, Billerud, Tetra Pak, and others. The economic outlook for these companies is good,

but will hardly lead to new jobs. The objective of, and challenge to, the region is therefore to make use of these companies' growth, networks, and entrepreneurship. Through the support of an innovation system, we intend to create increased growth and employment in new and complementary businesses. This is to be achieved in the following ways:

- forming new companies within big, existing companies
- development in complementary or new companies
- increased growth and job protection in existing industries, e.g. by developing new areas of competence
- attracting companies to the region
- increased turnover for existing companies through participation in system deliveries.

TPA is meant to help the region increase its share of the market for packaging development – and thereby its contribution to GDP.

Examples:

- In the autumn of 2005, Stora Enso forms a jointly owned business for trading with newly developed packaging concepts.
- The two largest advertising agencies of the region, Clara and Ord&Bild, both of which are big also on the national level, create profiles for packaging design and development through their own subsidiaries.
- Flexmed from Helsingborg will open a branch in Sunne in order to get closer to education, technical equipment, and networks within TPA.
- In 2004, the former managing director of Löfbergs Lila and his partners start the Adpack company with the business idea to offer system deliveries for packaging development.
- In 2004, Qell Designbyrå, which is partly concerned with packaging, and the production company Wellcase are formed at Inova. Both companies are started by students of Karlstad University and with support from projects carried out at Designstudio Värmland. At Inova, there is also the Briscan company, which focuses on information technology and packaging.
- In 2004, the research and development company The Packaging Greenhouse is formed by Metso Paper.

For further information on Clusters and Cluster initiative, see appendix A.

3.6 Results

Results for both education and research are to be found in section 4.8.

3.7 Conclusion

The Higher Education Act has been modified so as to also take up cooperation with society at large. In connection with this, Parliament passed a number of overall objectives and general guidelines for research and research policy. Apart from the objective that cooperation with society at large should increase, the bill also included guidelines and goals saying that research outcomes should contribute to growth. Among other things, Parliament decided that research ought to:

- contribute to economic development, efficiency in industry and commerce, and rising employment
- be put to use

- respond to the needs of society.

Many tools and structures are in place to promote the above. Karlstad University and Värmland make use of most of these. The development of the university has also been supported by both regional and national actors, such as the Knowledge Foundation, which has strengthened business support at both the regional and the national level.

As a relatively young university, Karlstad University has still a rather weak standing vis-à-vis national research funders. There may be a chance of promoting Karlstad University as a “research and innovation environment” at e.g. VINNOVA, in addition to making applications to the scientific establishment at e.g. the Swedish Research Council.

Already in the past, research at Karlstad University has to some extent been developed in conjunction with partners in the region. These efforts should be intensified, and strategies ought to be formulated concerning both contents and funding.

Since 2002, Karlstad University has developed, in conjunction with regional partners, a strategy for knowledge transfer and commercialization. Support structures such as Inova and Drivhuset have been professionalized. The acceptance of these systems needs to become stronger among the various research groups, but also among business networks and public stakeholders. However, all the stakeholders have clearly expressed that they wish to see results in the form of more jobs.

A recurrent question and challenge has to do with how the management of the university manages to balance the regional demands for commitment and profiles with its integrity and international networks. One cannot underestimate the importance of the university’s ability to communicate its role as an actor in the region (not: a regional actor) and the global knowledge and international contacts it can bring to the region.

SWOT analysis

Strengths

- There are existing clusters and cluster organizations in the forest industry and in IT. (Ch. 1.4.11)
- A young and flexible university. (Ch 0.3)
- Some internationally competitive research environments have been developed (e.g. the Service Research Center). (Ch. 3.5.3)
- The business sector and public stakeholders are involved in the development of research at Karlstad University. This is reflected, among other things, in the profile areas (e.g. nursing and public health in cooperation with the County Council of Värmland) and in the existing research centres. (Ch. 3.4)
- Support systems have been professionalized, and research continues to be developed in a spirit of openness. (Ch. 3.5.2)

Weaknesses

- Weak national management by objectives and follow-up of the contribution of research to economic growth. (Work Shop)
- Weak confidence on a national level in the ability of HEIs to create support structures and profiles. (Work Shop)
- The university is relatively unknown and does not belong to the establishment as far as research funding is concerned. (Work Shop)

- Research contents and some leaders of research are unknown in the region, which means that some research areas receive little regional funding. (Work Shop)
- Awareness and acceptance of support systems is still weak in some research groups. The coordination of different stakeholders and initiatives concerning entrepreneurship in the region is weak. (Work Shop)
- The system to involve small and medium-sized companies has room for improvement. (Work Shop)
- The access to venture capital on the regional level is limited. (Work Shop)

Opportunities

- A common agenda for research contents and funding may be created, as well as joint resources for e.g. funding from the EU. (Ch. 6.5.1)
- A new organization and new management processes at Karlstad University offer an opportunity for ensuring broad understanding for the regional agenda within the university. (Ch. 6.6)
- Established research can be put to even better use for the region. (Work Shop)
- There is the potential for developing common profile areas (e.g. data security or working life science). (3.4)
- Cooperation with other HEIs. (VUS, Penta Plus)

Threats

- The limited resources in research funding affect priorities, i.e. research at Karlstad University is not developed further at all or not with the interests of the region in mind. (Work Shop)
- Too many resources are used for administration and funding issues. (Work Shop)
- Support systems dependent on individuals risk the loss of key persons unless permanent structures are created. (Work Shop)
- The administrative survey concerning regional divisions and regional enlargement (“Ansvarskommittén”) that is currently in progress may lead to significant changes of administrative structures (which may also be considered an opportunity). (Work Shop)

4 CONTRIBUTION OF TEACHING AND LEARNING TO LABOUR MARKET AND SKILLS

4.1 Karlstad University's Mission

The national mission of Karlstad University (Ministry of Education 2005) is partly laid down in the Government's directives in the annual regulatory letter to the HEIs. As an academic institution, the university is free to shape its own educational profile. The Government can, however, emphasize areas of priority by means of the national budget and the allocation directives. As earlier described, this is done through the objectives set for the number of degrees to be awarded in different fields. A second general principle to be applied is that the programmes offered should reflect student demand and the needs of the labour market. The mission is based on national demands and is not restricted to regional needs. The university thus contributes to the national increase of competence levels.

The university, in short, is partly steered by annual governmental directives, and partly by the local board and the Rector who are jointly responsible for the university's vision and strategy, as well as the management of academic activities and the economy.

4.1.1 Vision 2015

Karlstad University's vision statement (Karlstad University 2005) for the nearest future describes our ambition regarding our role in society based on parliamentary and government directives (see also section 0.6)

- Karlstad University is an open university valuing intellectual and academic freedom.
- Our objective is to create, cultivate, integrate, disseminate, and apply knowledge.
- In close contact with the world outside, we develop knowledge for progress.
- We explore the unknown and challenge traditional boundaries.
- We dare to break new ground.

Below are some examples of objectives stated in the vision document:

- high quality education in all areas
- 10, 000 full-time students per year
- study programmes with a broad curricular base leading to the award of attractive degrees
- flexible learning
- openness and close contact with the world outside
- all study programmes have a global perspective
- Karlstad University provides a world-class learning environment

4.1.2 Education Strategy

In order to meet the objectives, several strategies are under discussion in preparation for a new strategy for education:

- student recruitment: nationally and internationally
- programmes offered: developing new strategies for key programmes
- technological programmes prioritized
- flexible learning further supported and consolidated
- increasing the number of Master's programmes offered

- further investments in the learning environment and campus area
- adjusting education to the Bologna process
- retaining a high level of competency
- developing routines for continuous analysis of needs and changes in the world
- quality assurance to be intensified nationally, regionally, and locally
- careful evaluation of the effects of the new organization as of 1 January 2006
- continuing professional development.

The new education strategy will be finalized and presented at the beginning of 2006.

Statistics on the present job situation for newly graduates show that there is a clear imbalance in supply and demand in certain areas. Regarding health care, there is a lack of qualified applicants, while there is a surplus of graduates with degrees in the humanities or the Fine Arts.

Today there is a gap between long-term and short-term needs of the labour market. In many sectors where graduate unemployment is presently high there will be a greater demand in a few years. The short-term demand for employees should not be the main consideration in the dimensioning of student volumes for professional trainings. Such decisions should be based on an analysis of long-term labour market needs.

The number of degrees awarded in engineering together with degrees at different levels in technology is expected to rise in 2005 as compared to 2004.

4.1.3 Strategies for competency development

The University has laid down the objectives for professional development in the next three years. A short- and long-term guaranteed high level of competence is vital to the University's progress. In 2004, the core competence represented by professors, senior researchers, doctoral students, other researchers, and teaching staff totalled the equivalent of 701 full-time positions. Women made up 47% of the core staff. In the coming ten-year period the number of retirements might entail difficulties in finding replacements, especially in the categories of professor and senior lecturer. The objective to increase the share of Doctoral students is one of the most important efforts made to maintain and promote the university's standard of education and reputation. The goal is to raise the share of Doctoral students from 39% in 2005 to 55% in 2008. The University aims to offer opportunities for academic careers, schemes for mentorship, networks, project management, and career advising. A programme for leadership development of future leaders in the organization is in progress. In the long-term perspective, the goal is that women and men in all professional categories make up no less than 40% and no more than 60%.

The importance of the University for the general level of competence in the region is clearly shown in the low percentage of highly educated persons aged 25-64 in Värmland. Whereas the percentage is 12% for the nation as whole, the figure for Värmland is 8%. A great deal of effort is required to come closer to the national average. However, the Karlstad area rates above the national average with its 15 %.

4.1.4 Organization

The President of the University Board and the Rector are appointed by the Government after hearing the local board. The Board consists of eight members appointed by the Government, the Rector, three teachers, and three student representatives, or 15 members in all.

The Rector, faculties, and divisions have the services of a joint administration at their disposal. The administration prepares and processes administrative and economic matters and contributes to the cost analysis, the annual report, and other evaluations and revisions. The responsibility for quality assurance of education and research rests with the two faculty boards. The organization consists of ten divisions, a library, and support units. At present, Karlstad University is in the process of a major reorganization which entails changes in management and procedures.

The number of employees is 1,050 persons of varying academic qualifications. Approximately 65% of the employees are researchers or teachers.

The university's annual turnover is 800 million SEK (2005). Investments in buildings and equipment since 1990 to the present have been made to the tune of 1,200 million SEK. All premises are owned by Akademiska Hus AB and rented by the university at market price.

The 10,500 students exert a noticeable influence on the region during their time of study. They are an important element in the life of the city, and as consumers they have an impact on the choice of accommodation, cultural events, and entertainment.

4.2 Regional perspectives on the exchange of experience and relation to reality

In the area of education, Region Värmland contributes to creating meetings to promote exchanges of knowledge and competence as well as participate in and support various types of networks.

Teacher education at Karlstad University is a good example of a process conducive to reciprocal benefits in its cooperation with approximately 50 municipalities, i.e. the whole region and beyond. Parts of the students' training take place in schools, pre-schools, and after-school centres. The municipal instructors are offered training as mentors at the university. In addition, they are invited to partake in seminars, lectures, and conferences arranged by the university as a form of further training. Municipal representatives participate in work groups and networks where issues on content, teaching needs, and the organization of teacher education are discussed. The shared responsibility for teacher training between municipalities and the university is regulated in the agreement between the parties. Degree projects are also meant to serve as a link between the university and professional life.

The Regional Development Centre for Schools (RUC) is a formal network of municipalities in the region and Karlstad University. Its aim is to enhance and promote matters of shared concern such as school development, teacher training, and research. School development projects supported by RUC have been carried out in all Värmland municipalities.

In the health care sector (health care, dental care, and nursing), the university works in association with the County Council, municipalities, and private clinics through internships. Internship agreements are drawn up with the division responsible for the quality in the education, which also involve a commitment on the part of the university to offer opportunities for competence development, such as training for supervisors, seminars, and cooperation and support in development projects. The health care sector has different networks for the discussion of internships, the needs for further training, or joint development projects. Besides the university and County Council cooperation committee, the most organized and formalized group is the Institute for Quality and Development in the Social Services (IKU).

4.3 Student recruitment and the regional labour market

The university recruits 45% of its students from Värmland and 55% from the rest of Sweden and abroad. Studies show that 50% of the graduates find a job in the region. A majority of the students say that they would have liked to stay in Värmland if they had found employment here. This means that there is an adequate supply of qualified people in the region. Programmes offered are reasonably well balanced against the needs of the local labour market and any development is carefully monitored by the specially appointed regional competence council.

A complicating factor in student recruitment is the recent change in young people's life styles. There is no longer a direct transfer from upper secondary school to university. This means not only that the periods of study among the different age groups are drawn out in time, but also that the regional university is not necessarily the obvious choice.

In Värmland, as in Sweden generally, education is still clearly gendered. There are, for instance many study programmes that are almost unisexual. This, in turn, results in a gendered, or sexually segregated, labour market. The prevailing pattern in Värmland is the domination of women in higher education. The most recent admission process of freshmen turned out to include only 33% of male students. Some municipalities display even bleaker figures, especially regarding those who embark on a university education after the age of 35. In certain municipalities, this group consists of 100% women. Despite this, women work part-time, have the lowest income, and fail to be promoted to management levels.

However, in the area of health care, the university has succeeded in overcoming the traditional gendered resistance. Today, Karlstad University can report a large number of male students enrolled in health care study programmes.

With a view to making Karlstad university better known and stir interest in its educations, the university participates in many events in the region and elsewhere, for instance the annual music festival in Arvika, and visits schools, education fairs, and sports events. Marketing is also rendered more effective by our own events, such as Open House, summer research for school pupils, advertising, press conferences, websites, and brochures.

Special attention has been paid to making young people more interested in the natural sciences and technology. Two years ago, a project for students at a local upper secondary school started. About 100 students per year visit the university for a week to test university studies in specially designed lectures and laboratory work, as part of their workplace training.

Karlstad University is also in the process of establishing an Alumni network. At present, 2,000 former students have joined the network. As membership grows, the network can prove very useful in different kinds of follow-up activities and studies.

A follow-up system is currently under construction at Karlstad University. The plan is that all programme students will receive a questionnaire three to five years after their graduation. The questionnaire will focus on the relation between current employment and the job market trained for, and on career progress to date. The questionnaire also includes questions on place of residence prior and subsequent to the study period, in order to get information on the demographic role of education. The relevance of programme design and content in relation to actual demands is measured through the respondents' subjective opinions. So far, the follow-up project has encompassed programmes in the technological and health care sectors and it is

gradually being extended to other sectors. At present, there are no concrete plans to include employers and organization in the investigation.

Karlstad University's job centre and student career service is called Vägvalet – Karriärservice ('Career Choice – Career Service'). Vägvalet helps undergraduate students to make contact with potential employers and workplaces during their studies, and efforts are primarily directed at local employers and regional development. Vägvalet provides personal mentors, mentor companies, and acts as an intermediary between companies and students who are working on degree projects.

4.4 Contributions to life-long learning, and further professional development and training

Karlstad University offers several programmes in the form of distance education, such as dental hygiene, specialist nursing, and teaching. The part-time specialist nursing programme, for instance, was designed in conjunction with professional nurses and unit leaders. Some of the distance education programmes are net-based, with few face-to-face meetings, while others are organized in study groups at learning centres in different places such as Karlstad, Örebro, and Falun. Life-long learning is supported by municipal investments in learning centres. A learning centre is a place equipped with computers, databases, and classrooms, where local students can meet, participate in interactive instruction, search in library databases, order books. Region Värmland and the 16 municipalities in Värmland all contribute to flexible learning through learning centres.

We also offer Master's degree programmes via distance learning platforms and just a few campus meetings, e.g. the Master of Community Care (MCC). The programme Master of Public Administration (MPA) is offered for the third time and attracts many applicants. These programmes are partly financed by the EU's Interreg Programme. The MPA programme is designed for management level staff at Swedish and Norwegian organizations and public authorities.

As of 2005, all commission education at Karlstad University will be processed via a university company in the hope of improving communications with the world outside. The ambition is to create an organization that will make development resources available to faculties and disciplines at the university, which in turn will facilitate pro-active action and the planning of attractive and relevant programmes. All responsibility for the planning and running of courses still rests with the faculty/discipline.

There is an extensive programme for advanced vocational training in Värmland. These training programmes (post-upper secondary education) for various occupations combine theory and practical work. In the autumn, no fewer than 21 such programmes will be taught. For most of these, Karlstad University is represented in the steering committees. The training programmes are developed in conjunction with Region Värmland.

Karlstad University works to promote a wider and more diverse recruitment of students with different backgrounds to higher education. Examples of such efforts are study visits to municipalities, production of information material, and cooperation with schools. A complicating factor is the national system for allocation of resources to higher education, which is based on student performance. The effect of such a system can be counter-productive with regard to diversity in recruitment. In terms of funding, it might seem wiser to recruit highly motivated and academically prepared students than students in need of cost-intensive remedial support and training in their studies.

4.5 New forms of educational opportunities

Nearly 15% of the education offered at Karlstad University in 2004 was in the form of distance learning, of which 45% were study programmes and 55% individual courses. In most cases, instruction is wholly net-based. Teacher training programmes are exceptions, since learning centres are utilized as local resources. Previously, the region was the main catchment area, but now students are recruited from most parts of Sweden, especially the south. Of the courses offered, only ten rely on learning centres both in and outside the region.

By means of modern ICT, such as web-based communication platforms, streaming video, and web communication, instruction can be more flexibel and less geographically restricted, which leads to recruitment nationally. Karlstad University participates actively in the Swedish Net University.

The modes of instruction in distance education have had an impact also on the flexibility of on-campus education, where the use of ICT is increasing. Some disciplines practise “blended learning”, i.e. the same course is offered off and on campus at the same time. Karlstad University has the ambition to introduce “blended learning” and flexible web-based learning for all forms of education.

EXAMPLE:

Distance Education

There is a shortage of qualified teachers in school. This is a common situation in many municipalities throughout Sweden. The ways to make non-qualified teachers qualified vary. The Government has very clearly instructed teacher trainers to be inventive in their efforts to remedy this situation. Karlstad University has started a full-time distance teacher training programme with mixed subject groups. It is a three-term programme (90 ECTS credits), designed for people who lack formal teacher training, but have studied other subjects at university.

Anders Olsson is enrolled as a student in the programme. He already works as a teacher in an upper secondary school in Karlstad. He has degrees in Economics and Systems Sciences. Now he is pressured by the demand that all teachers should be qualified.

- I like working with people and I like teaching. I consulted a study advisor who recommended this training to me as it answers my needs for a complete degree in teaching.
- Distance learning and mixed student groups work well for me. We have worked on a project in a group where five subjects were represented. Our task was to choose a theme, pool our resources, and apply different knowledge. We chose to work with batteries and used chemistry to describe its construction, and then we turned to biology and geography to show how people and nature are affected by battery materials. In our presentation, we

4.6 Reinforcing the regional educational system

The Higher Education Ordinance allows for other rules of admission than school-leaving certificates or SAT-tests for 10% of the places. Karlstad University has, since 2002, taken advantage of this alternative in order to remedy unequal gender distribution, especially in programmes with few male students. The result is that the proportion of male students to enrol in the social care programme has risen from 3% to 20%, and in nursing from 7% to 13%. The

effects of priority rights for men are not as noticeable in other areas (dental hygiene and primary school teacher education). The number of male students in the latter programme has been the same (20-25) ever since the start in 2001.

Priority admission has not proved effective in increasing the number of female students in male-dominated areas. Qualified women applicants have been admitted without priority due to the low number of applicants to, for instance, technological programmes. Although for some years, there has been a steady increase in the number of women students in higher education, the tendency for technical areas and ICT has been the reverse. The number of women beginners in engineering has decreased by half since 2000, and their share of students there has dropped from 26% to 19%. In Systems Science, the decrease is even bigger with a drop from 41% to 13%.

Several gender-related projects were launched in the autumn of 2004 to attract more women students to technical programmes and to facilitate their studies as part of the project "Wanted: Technologists" (see section 4.7). Student experiences have been mapped and new pedagogical models have been developed. Another project involves providing mentors for all women students in technology and engineering. The purpose is to develop the students' confidence in their career choice and to help them complete their studies. A third project focuses on creating a supportive network for female students in engineering.

4.7 The project "Wanted: Technologists"

The objective of the project "Wanted: Technologists" is to make the natural sciences and technology more appealing to young people. It is a two-year effort, financed by the Erik Johan Ljungberg educational fund. Regional stakeholders are local industries, Karlstad University, and upper secondary schools in the Karlstad area. The objective is to make more secondary school students eligible for admission to upper secondary science and technology programmes, and thus meet university requirements in these fields. A second objective is to offer teachers professional development in pedagogy. In addition, regional working life and school students come in contact throughout the education system.

4.8 Results

Karlstad University can present many successful results for the first years as a university. Resource allocation for undergraduate studies and research has increased dramatically, as has the number of doctoral students and degrees awarded. The university's contribution to society is obvious, and the educational level in the region is rising, especially in the Karlstad area.

The results of academic work display a promising rising tendency. The number of patents and licences is increasing and our visibility in the academic community in terms of citations and publications is noticeable and rising.

The role played by the university as regards entrepreneurship is difficult to assess, but our efforts in the form of entrepreneurial training, Inova investments, the incubator Drivhuset, and general regional endeavours to promote new businesses indicate that university education and research are important for progress.

Undergraduate studies

	1999	2004
<i>Students, absolute numbers</i>	9 147	10 554
<i>Students, full-time equivalent (incl. commission education)</i>	7 542	9 086
<i>Programme degrees awarded</i>	919	1 251
<i>Undergraduate allocation, million SEK</i>	287,6	445,8
<i>Alumni</i>	50	1800

Research

	1999	2004
<i>Publications, total</i>	219*	325
<i>Patents and licences</i>		299 **
<i>Citation index total</i>		1 781
<i>Doctoral students enrolled total</i>	107	239
<i>Doctoral degrees without a preceding licentiate degree, total</i>	12	13
<i>Doctoral degrees, preceded by a licentiate degree, total</i>	0	6
<i>Licentiate degrees, total</i>	0	20
<i>Research allocations, million SEK</i>	52,9	145,7
<i>External funding, million SEK</i>	65,9	113,4
<i>Research volume, man-years</i>	177	289

* 2001

** 1994-2001

(Annual Report 1999 and 2004, Karlstad University)

4.8.1 Quality Assurance

All Swedish higher education institutions are evaluated every six years. The National Agency for Higher Education is responsible for the evaluation of study programmes and disciplines. If there are grounds for objections regarding quality, a warning is issued and a one-year grace period for improvements is stipulated, after which the situation will be reviewed. If nothing has improved, the institution will lose its right to award degrees. To date, 201 evaluations of subject departments have been carried out in Sweden, of which 11 involved Karlstad University without any complaints being made.

4.8.2 Citations

One way of measuring interest in, and the quality of, a university's scientific production is to check citations of books and articles. In a five-year period the number of Karlstad articles listed in the ISI Web of Science (Institute of Scientific Information) rose from 41 published in 1999 to 98 publications in 2004. The total number of articles in the database in 2004 was 418 articles, which were cited 1771 times.

4.8.3 Patents

Statistics on patents are used for longitudinal studies of quantitative changes in invention practices. At the Royal Institute of Technology, KTH, the effects of newly established universities and colleges are studied in the Department of Infrastructure. The economic effects of Swedish higher education politics are analysed on the basis of the number of patents granted. The Report "Patents and Their Regional Distribution" presents the distribution of patents granted across regional and technological fields.

The area to the north of lake Vänern is pointed out as an area of high patent productivity measured in numbers of PA/1,000 inhabitants. Another measure is patent activity or the proportion of granted patents to inventors in a particular municipality at a given time. In this respect, Karlstad is rated high on the list of the country's regions in the period 1994-2001 with 299 patents or 2.34 patent applications/1,000 inhabitants. The Värmland region accounts for 40% of the patent applications in the fields of textile and paper.

4.9 Conclusion

Karlstad University's official regulatory documents are not only clear and in accordance with national directives, but also adapted to regional interests and needs. The vision document has a ten-year perspective and was processed and formed through interaction with faculty and staff to ensure that all employees should have the opportunity to participate in shaping the vision and develop the will to work towards its fulfilment.

The research strategy is two years old and focuses on six important areas of knowledge. These areas were defined in terms of regional needs, but are intended to contribute to knowledge development nationally.

A new educational strategy is under development and is to be presented at the beginning of 2006. One of its objectives is to find strategies to promote and reinforce the university's competitive edge. Highly prioritized is the power of the university to provide appropriately qualified people with relevant knowledge and skills.

The fact that the level of education among the population in the region is lower than the national average is a weakness which must be remedied. The strategy of investing in flexible education is part of the effort to raise the educational level. Regional representatives and various municipalities have made substantial investments in developing learning centres for adults.

Also the low number of teachers holding doctoral degrees is a weakness in the university's general area of competence. The goal is to raise the proportion from 39% in 2005 to 55% in 2008.

Study programmes and areas of education attract students to different degrees. There are not applicants enough to fill study places in the natural sciences and technology. Karlstad shares this problem with the rest of Sweden and Europe. In Sweden, 20,000 university places requiring upper secondary school studies of natural sciences or technology for admission are offered every year, but only a total of 15,000 school leavers meet this requirement.

There is a great potential, however, for meeting the demand for qualified people. Karlstad University recruits 50% of its student body from the region and 50% nationally and internationally. If there were more job opportunities in the region, many more graduates would remain in the region.

The university's programmes for entrepreneurial training are limited and the inclination to start private businesses among students is modest despite efforts to promote and facilitate entrepreneurship. However, a recent survey shows a growing student interest in these matters and there is room for improvement from the university's point of view.

Recruitment and career services take place in close cooperation with regional stakeholders. A shortcoming in the student body is the unequal distribution of sexes and the fact that only 33% of the students are male.

The university's procedure to guarantee a reality-oriented foundation in professional programmes is effective. In teacher education, a partnership model is in place as well as a special committee for competence transfer, the Regional Development Centre for Schools (RUC). Programmes in health care work well together with the County Council, and internship placements are guaranteed through agreements.

The table of results presented above shows a positive development for the region in terms of education and research since the university college became a full university in 1999. National allocations of resources to education and research as well as external funds for research have increased. This has had a favourable effect on regional development, judging by a number of key measuring factors which are assumed to mirror the effects of increased supply of resources, competence, clusters, financial resources, and the willingness to cooperate.

SWOT analysis

Strengths

- The strength of the university's contribution of education to the labour market is its balanced and well-planned choice of programmes and courses in relation to the needs of the region for teacher education and health care. (Ch. 4.2)
- Resources for regional development are on the increase. (Ch. 6.5)
- Karlstad University is a young and innovative university. (Ch. 03)
- Some efficient structures for regional cooperation exists (Ch. 1.4.1)
- There is great mobility between Norway and Sweden. (Work Shop)

Weaknesses

- It is difficult to recruit students to some programmes. (Data from HSV)
- Local businesses view cooperation with the university less favourably than earlier. (Survey by Municipality of Karlstad)
- The regional labour market does not have, or fails to see, a need for all graduates. However, the university contributes to the national market. (Work Shop)
- Established trades do not employ new people. There is little renewal of industrial life, which means no demand for engineers and people with doctoral degrees. (Work Shop)
- The level of education in industry is low by tradition, which means that contact with Karlstad University seems distant and undesirable. Increasingly, foreign owners have taken over local industry and moved development resources abroad. Few research and development departments in companies mean little contact with the university and a low demand for our services. Manufacturing and development departments are separated and thus run the risk of losing competitiveness. (Work Shop)
- The role of the Karlstad area in a national perspective is unclear. This makes us uncertain about our role and strategies. (Work Shop)
- The region lacks a strategy shared by other regions. (Work Shop)
- Regional cooperation as a whole in the technical field needs improving. (Work Shop)

Opportunities

- The ability to respond faster than other regions to changes in the labour market and educational demands. This also applies to further training and flexible learning. (Work Shop)
- We must catch the attention of the uninterested young men and turn them into well trained engineers on the global labour market. (Work Shop)
- We must be strong globally in certain branches to be regionally strong. (Work Shop)
- Our cultural-geographical heritage is an asset as well as an impediment. (Work Shop)

- Develop platforms linked to strong environments at Karlstad University in some industrially viable areas. The considerable output of graduates on the labour market is a great potential for the region. (Growth Analysis Värmland).
- Increasing cooperation with Norway. (Work Shop)

Threats

- Boys, especially in non-urban areas, lack interest in higher education. The trend that fewer young men apply to Karlstad University is growing. (Data from HSV)
- The continuing lack of interest in technology and the natural sciences poses a serious threat to education and the technology-based industry in the region. (Work Shop)
- The research groups at Karlstad University who create their own platforms and who build on their present knowledge instead of present and future regional need. (It needs to be said, though, that there is an understanding of the need for profiling nationally and internationally.) (Work Shop)
- Resistance to changing study programmes. (Work Shop)
- There is a risk that development models designed for countries, regions, and universities far bigger than Sweden, Värmland, and Karlstad University are introduced and reproduced uncritically here. (Work Shop)

5 CONTRIBUTION TO SOCIAL, CULTURAL, AND ENVIRONMENTAL DEVELOPMENT

5.1 Social development

Traditionally, a university serves the role of providing an environment for critical discussions, a meeting-place for different stakeholders, and for developing and cultivating knowledge. The University should be a place for cultural enrichment, and a place where initiatives and development are promoted and nourished.

Apart from the generic role as stakeholder in the regional social development Karlstad University has restricted its provision of social services, such as health care, cultural exchange, and religious activities, to the students and their needs. This is an adjustment to the Swedish system, which stipulates that all students must be members of a student union. Within this framework, services and assistance are provided, but not to the community at large. The system requires that the students themselves, through their own union, adjust to needs and provide health care and religious professionals, among other things, to the members. The dimensioning of services is in proportion to the student union budget and economy. At Karlstad University, the services are organized by the student union with a membership of 8,000. Membership is mandatory. Beyond the services provided by the student union, the students are entitled to the same public service as everyone else as regards health care and social welfare.

The student union in Karlstad runs a day-care centre, a health clinic, and provides therapeutic and religious professional care. The union also offers students many opportunities and facilities for physical activities. On campus, there is a gym as well as a sports hall, and there are jogging tracks in the surrounding woods. At present, the university is actively involved in realizing a sports arena on campus. It will be designed to cater for students, local and regional people and be used for sporting events as well as concerts, conferences, and fairs. In addition, the arena is planned to house a health centre and a gym – facilities to be shared with relevant disciplines at the university, such as sports science.

Activities with a social function are provided by the university clubs, choirs and drama society, which are welcome to use campus premises free of charge. These societies are voluntary and financially sponsored by the university. Their performances and events are attractions for the whole region.

In addition to the mandatory student union, which exerts considerable influence on issues related to accommodation, leisure, and social services, there are the programme-related societies. They serve an important function when it comes to introducing new students, national and international, to life on campus and to studies.

In conjunction with the university, the student union has shouldered a special responsibility for the well-being of the international students during their study period. An introductory programme for new students is part of their task. Accommodation is provided by a municipal housing corporation, which has 2,000 flats to let. In addition, there are many private landlords. It is also worth noting that Karlstad Municipality guarantees accommodation to all incoming students within a month from the start of term.

5.1.1 *Cooperation with the community on social issues*

Karlstad University has an ambition to be part of society by providing high-quality research and education. This contribution is ensured in several ways throughout most of the study programmes

offered (Karlstad University Undergraduate Programme Catalogue 2005-2006). The university offers programmes in the social sector, addresses issues in research of relevance to social services, and contributes to the development of these services. The university does not, however, have special operative units that complement existing social services. The university's help is indirect and quality-assuring. Needless to say, the university is the main provider of professional development to social services, for example via the Institute for Quality and Development (see section 4.2).

5.2 Cultural development

5.2.1 *Karlstad University, the region, art and culture.*

The Karlstad University vision document stresses the university's role as an institution of culture. This means that students and staff are encouraged and motivated to attend cultural events and actively be involved in cultural activities. It also means that the community should be able to recognize the university as an institution of culture and as contributing to the knowledge and understanding of the value of culture for the individual and for society. The university has a responsibility to provide opportunities for enjoying aesthetic experiences and for different artistic and cultural forms of expression.

The university fulfils its mission and vision through different strategies and efforts. We offer, for instance, programmes and courses with a clear focus on culture, as well as activities open to the public, such as lectures, seminars, popular science events, and workshops.

By working with other stakeholders, for instance Region Värmland, Karlstad Municipality, and the Värmland Museum, the university reaches groups of people who would not on their own accord find their way to activities arranged by the university. In organizing popular science events, the university works in association with national stakeholders, such as the Swedish Research Council.

5.2.2 *Activities on campus*

In the teacher education programme, the trainees have the opportunity to develop their competence in cultural studies, which might prove valuable for the long-term growth in the region. One specialization is called "Language and learning in a cultural perspective" and is designed for future pre- and primary-school teachers. The focus is on language and language development, literature, reading, and learning processes in a cultural-historical perspective.

Another specialization, "Aesthetic learning", develops the future teachers' ability to work thematically with dramatization, images, rhythm, dance, and music. The course is aimed at equipping and motivating the trainees to initiate and participate in creative processes with children and teenagers. It is also expected to develop awareness of how aesthetic learning can generate understanding and enrich individual development.

Through experiential studies in schools as part of teacher education, and through the opportunity practising teachers have of taking these courses as further training, the university contributes to new and varied aesthetic and cultural experiences for all age groups.

5.2.3 *A number of extra-curricular and varied public events*

- In conjunction with Folkuniversitetet (an adult educational association), the university library regularly organizes a series of "learned discussions", in which a member of faculty discusses a subject or book with an invited author. The library is also open to the

public. Guided tours of the building and its art collection are offered on request, and since its opening, a great number of tours have taken place for public and private employees, as well as school children and societies.

- Public lectures by faculty members and researchers from other universities contribute to the students' and the public's general learning, and they are offered regularly throughout the year.
- Students of music at the Ingesund College of Music perform regularly in Arvika and Karlstad. The college also arranges a great number of concerts in different genres, often with invited guest performers of international renown.
- Teacher training students give public performances in drama, dance, and music.

5.2.4 Centre for Creative Arts

The Centre for Creative Arts combines academic and artistic traditions in new ways to generate knowledge. It has a regional, national, and international perspective on the knowledge development and conception of different forms of artistic expression. The centre works together with departments of art, dance, design, film, media, and drama. Lectures, seminars, and art production are part of the organized activities where regional cooperation is particularly valuable.

The Värmland Museum, Dance in Värmland, and professional artists are close partners as regards art and the teaching of art. Cooperation with schools in the region is extensive and many children are involved in projects every year.

The centre edits its own publication series, "Humans, Art, and Knowledge". So far, the centre has published eleven well-received publications on different art forms and artists, among others a book for children written in cooperation with the Dalai Lama.

5.2.5 Cooperation with other regional stakeholders

5.2.5.1 Cultural activities in school

The university works closely with Region Värmland on the project "Art in School". Teachers of aesthetic subjects from the university contribute to different school projects in the region.

Every year, teachers from the whole region and teacher trainees gather at the university for a day of inspiration on the theme "children and art". There are lectures, seminars, and workshops, and professional artists and children give dancing or music performances, or make slide shows.

5.2.5.2 Cultural breakfast

The "Cultural breakfast" is a meeting-place for culture workers, event organizers, the interested public, and public authorities and is organized by Karlstad University, Karlstad Municipality, Region Värmland, and the Värmland Museum. Once a month, writers, journalists, faculty, cultural agents, business representatives, politicians, and others discuss cultural issues, such as the circumstances and status of different forms of cultural representation and artistic expression, as well as the role of culture for local and regional growth.

5.2.5.3 Music

Along with a number of regional companies and stakeholders, Karlstad University sponsors the “Värmland Classic Festival” in various ways, one of which is the opening of its premises to concerts.

The university also supports the student choirs CMB and Söt Likör in their efforts to give many public concerts every year.

5.2.5.4 Student athletes

Karlstad University has renewed the three-year agreement with the Swedish Athletic Association. The agreement stipulates that the university, Karlstad Municipality, and the Athletic Association cooperate to offer elite athletes the opportunity to combine studies and sports activities. Karlstad has a long-standing tradition of excellence in the athletic field and attractive facilities for training. The university’s commitment to student athletes opens possibilities for talented young people to develop, and it reinforces the municipal investment in upper secondary sports students.

EXAMPLE:

Värmland Classic Festival

For the fourteenth consecutive year, the Värmland Classic Festival took place in Karlstad. For many years, Karlstad University has had the pleasure of co-organizing the event. In the university’s Aula Magna, Norwegian-sounding music was heard in honour of the centenary celebration of the peaceful dissolution of the union between Norway and Sweden in 1905.

Why does the university sponsor a four-day cultural event with world performers in different genres attracting an audience from all of Sweden? Karlstad University has a vision of contributing to a broad knowledge base for future society through a lively campus, open lectures, debates, art exhibitions, concerts, dance, and drama performances. The involvement in Värmland Classic Festival is one step towards this end.

In connection with the festival, several of the university’s partners were invited to Karlstad. The County Governor and the Rector jointly invited the heads of the national agencies that are facing relocation from Stockholm to Karlstad as a result of the current reorganization of the armed forces. Invited were also the County Chief of Police and the head of the Swedish Enforcement Service.

The Swedish Foundation for Strategic Research visited Karlstad University during the festival to discuss a research application for the Paper Surface Center. After a long day’s conference, it must have been balm for the soul to wind down with “The American Songbook” with the John Wilson Ensemble, Gary Williams, and the orchestra from the Värmland Opera.

Also school principals in Värmland were treated to an enriching experience in the form of the concert that concluded a day of discussions with the Dean of the Faculty of Teacher Education.

5.3 Sustainable development

In Vision 2015, Karlstad University emphasizes the importance of a sustainable development of society and clearly states the aim of actively contributing to this end and its preservation. The university's objective is to contribute to a socially, ecologically, and economically sustainable development of society.

The strategies to achieve this are stated in the university's environmental policy and the plan of action that is revised annually in a broad process (Miljöpolicy 2003).

The current Regional Growth Programme (RTP) is entitled "Sustainable Growth in Värmland". The university has been actively involved in producing the programme and in this way contributed with its vision and ideas on how the university might partake in this vital work.

5.3.1 Sustainable campus

Many initiatives for increasing the level of environmental awareness among staff and students have been taken and action projects are carried out to achieve a sustainable university. Examples of such initiatives are:

- Energy consumption – the goal is to lower energy consumption with 10% per unit area over a period of 10 years, among other things by automatic light switches.
- Travelling – the goal is to increase the proportion of environmental-friendly means of getting to the university, and to put a stop to the rising trend among staff and students of single driving.
- Business travels – all business travels should be undertaken with due regard to environmental aspects.
- Recycling – a system for recycling is effective in all university buildings.

5.3.2 Research and cooperation with the surrounding world

The Environmental Research Centre Forest and Society, Miljöfocus, works to establish research platforms oriented towards research on environmental issues related to woodlands. Miljöfocus incorporates research projects related to the environment at the subjects of biology, geo science, human geography, environmental science, and environmental and energy technology.

In the latter discipline, there are several research projects in support of sustainable development and with a focus on urgent societal needs. The projects are frequently carried out in cooperation with industry, organizations, municipalities, or public authorities. Even if technical solutions to improve energy efficiency and to counteract or prevent environmental problems are key, the research is often multi-disciplinary. Special efforts are made in the engineering fields of energy, water resources, and cleansing, and in technical systems and sustainable development.

Efforts have been made to strengthen the aspect of sustainability in the Regional Growth Programme for Värmland, "Sustainable Growth in Värmland". In cooperation with NaturResursCentrum Dalarna and Dalarna University College, a research project was carried out in 2004 with the aim of supporting small and medium-sized companies in their efforts to develop

more environment-friendly goods and services. In 2004, a large-scale multi-disciplinary project (natural sciences, social sciences, and technology) on sustainable development in woodlands was completed.

5.3.3 Undergraduate studies and cooperation with the surrounding world

In the humanities and the social and political science programmes, many courses address environmental issues. Generally speaking, however, it has proved difficult to find obvious ways to integrate environmental aspects in courses with a completely different focus. All engineering programmes, on the other hand, offer students opportunities to specialize in areas of sustainable development in some form. The energy and installation programme, for instance, has a clear focus on the environment, as do the programmes in energy and environmental engineering, GIS-engineering, chemical engineering, and construction engineering. In all master of science in engineering programmes, the environment perspective is integrated in all courses where this is possible.

In the natural sciences, the most attractive programme in terms of student numbers has been the environmental programme. In 2004, this programme and those of biology and mathematics shared an introductory term with many environment-related components. As of 2005, this introductory term will form an alternative start to the natural sciences programme. All programmes in natural sciences at Karlstad University have environmental components.

Environmental studies is multi-disciplinary in nature, and instruction involves natural sciences, social and political sciences, and the humanities. The intention has been to gradually include issues relating to sustainability in the course contents.

Since issues concerning regional sustainable development are intrinsically global rather than regional, the university's department of environmental studies has initiated international cooperation with universities in Eastern Europe and South Africa. The cooperation started in 2004 and aims at establishing regular student and teacher exchange programmes.

Another example of international cooperation is being discussed between Karlstad University and the University of Oslo. This project focuses on common national interests in sustainability and is inspired by the centenary anniversary of the dissolution of the union in 1905.

5.4 The Gender perspective

Värmland has a long tradition of heavy, male-dominated industries. Men have been more visible than women, particularly in traditional decision-making. For both sexes, this state of affairs has hampered innovative and independent thinking. There are old and ingrained patterns, and there is little or no understanding of the importance of equal opportunities. The tradition that men stay and women leave the industrial communities is also well-entrenched.

It is very hard to get the message across to employers that equal opportunities for the sexes is desirable in every way, even for economic reasons. Attitudes are difficult to change. When recruiting new employees, employers often give up at an early stage, because they lack the ability to assess candidates according to other criteria than the established ones, and mistakenly believe that there are no suitable women candidates for the job.

Awareness of equality issues is superficial and nothing but lip service. This also applies to political life, which is particularly unfortunate, since politicians are strong role models. Although

legislation in the area of equal opportunities is clear, affirmative action in the form of priority access to employment based on gender is, generally speaking, negatively charged because of ignorance and prejudice.

There are reasons to be optimistic, however. Many things will happen in the years to come. The generation shift in industry holds out the promise of change and this opportunity must not be allowed to slip by. The traditional, masculine “ritual culture” in Värmland must be abandoned and be replaced with a new way of thinking: the world needs Värmland and Värmland needs the world.

It is difficult to change attitudes, but it might work with clear directions and norms. Affirmative action is required. The need for education is great in the county and it is hard to find ways to change attitudes. It is imperative to communicate directly with big and small companies. In the same way as quality and environment achievements can earn a company a commendable certification, so could a gender equality certification be issued to companies. It is important that municipalities and the university work together in this respect.

Some might object to the idea that the university, whose primary task is to offer education, has a duty to approach industry. According to this view, the university’s industrial networking should focus on establishing contacts between students and workplaces for internship and degree projects.

The generation shift in the region’s industry makes changes possible, and it is important to point to the economic advantages of equal opportunities in working life. We must demonstrate that Värmland is a good place to live and work in. Companies are in a position to impact attitudes by setting an example.

It is also important to influence boys and young men by helping them to break patterns, by making them motivated for studies, and by offering role models. Companies must work with schools and help design short post-upper secondary education suitable for boys who are uncomfortable with theoretical studies.

5.5 Conclusion

Karlstad University cooperates extensively with Region Värmland, Karlstad Municipality, and other public stakeholders in social, cultural, and environmental areas. The university contributes to the regional development through research projects in association with local industry, and through offering training which is geared towards local needs. In addition, the university, in cooperation with other stakeholders, organizes several public events annually, such as lectures, seminars, workshops, and concerts. Public organizations with links to the university have been located on campus or close to it, e.g. Inova and the Energy Office. The university and the region have jointly incorporated environmental objectives in the Regional Growth Programme. There is research and education in environmental fields, but it is hard to integrate these issues in programmes that focus on other areas. The gender perspective can be developed considerably, and better equality of opportunities for men and women is necessary for regional growth.

SWOT analysis

Strengths

- The university is a campus university (with the exception for the Ingesund College of Music in Arvika). (Ch. 03, 04)

- The university is easily accessed and praised for its surroundings and atmosphere. (Work Shop)
- There is a reciprocally rewarding cooperation with public stakeholders in the social and cultural sectors. (Ch. 5.2.5)
- The formal meetings are propelled by optimism for the future and the contacts established make informal meetings possible. The Regional Growth Programme and Karlstad University contribute to the growing number of meeting places with an atmosphere of good-will and open minds. (RTP and Ch. 5.2.5)
- The small city has many advantages: strong networks, clusters, and many unexpected meetings give rise to new relations and constellations. (Work Shop)

Weaknesses

- The university's location on the outskirts of Karlstad is perceived by many as a serious drawback because it makes the university less accessible. (Work Shop)
- The same persons, "The Club", frequent the formal meetings and there is a fixed hierarchy. Despite of this, there is a lack of knowledge regarding the others' situations and possibilities, which means that the assumed unanimity might be imaginary. (Work Shop)
- The informal meetings take time, they are gender-structured, and the inspiring environment at the university is not utilized enough. (Work Shop)
- Discussions of regional expansion tend mostly to focus on *larger communities* and on the need for *one* geographical direction, namely East, or South-West. (Work Shop)
- Värmland is one of the most segregated regions in Sweden in terms of gender, according to the Statistics Sweden equality index, which is based on a number of gender-specific variables.

Opportunities

- Karlstad Municipality has a strategic plan to expand the city to the east, west, and in the centre. Karlstad University is located in the eastern node. Even today, apartment buildings are erected in the campus area. (Work Shop)
- The generation shift in industry and public services will improve the chances of achieving a better balance of men and women in leading positions. (Work Shop)
- The planned sports hall opens possibilities for further cooperation on cultural and sporting events, as well as joint ventures with industry and commerce. (Ch. 5.1)
- Prospects are good for developing formal and informal meeting places in line with the proposals of the workshop on this theme (appendix 1).
- Special meeting places and forums should be established for doctoral students. (Work Shop)
- A higher degree of awareness of gender inequalities would be a good starting-point for developing and implementing a plan of action with regard to gender segregation (proposal from the workshop on this issue – appendix 1).

Threats

- The lack of interest in natural sciences and technology constitutes a threat to the future of environmental work. (Work Shop)
- Strong male power structures and traditional decision-making inhibit creativity and innovative ability. (Work Shop)

6 CONTRIBUTIONS TO REGIONAL COOPERATION

6.1 Mechanisms supporting the contribution of higher education to regional development

As a supplement to the descriptive parts of the cooperation between the university and the region, an overview of the frameworks/mechanisms which support and facilitate cooperative efforts are listed below. Some examples have already been mentioned in chapters 2-5, while others add to the picture of the existing framework.

6.1.1 Introduction/Background

The development of Karlstad University from the status as an institution for higher education ('högskola') to an institution for higher education and research (university) has meant unique opportunities to create a dynamic and open culture. The process was enthusiastically supported by regional industries and public service stakeholders, which laid the ground for the favourable attitude to cooperating with the surrounding world that was and is characteristic of our institution. This positive attitude was strengthened and further developed subsequent to the university's change of status in 1999. In the past five to seven years, Karlstad University has expanded in education as well as in research, and has recruited researchers nationally and internationally. The new research leaders have the ambition to build something new, and they also have an understanding of the importance of cooperating with external partners, not least from a financial perspective. This development was made possible thanks to an open-minded culture and attitude rather than being a result of directives, and it was furthered by the process of change and innovation that preceded and followed the ratification. There is, in other words, a good basis for making cooperation an integral part of the university's education and research.

All the regional partners agree that the level of competence in Värmland needs to be raised and that entrepreneurship needs boosting. Priority is also given to these areas in the Regional Growth Programme, which, in the context of four out of five focus areas, refers to the university as a vital resource for regional development. The university has also been active in the process of developing the Regional Growth Programme.

The Karlstad University vision document (2005) states that "openness and close association with industry and public institutions are integral parts of education and research." This statement reflects the belief that education and research can progress through external cooperation and benefit from it, just as society can benefit from and progress through cooperation.

An important aspect of Karlstad University's strategy is the belief that a good climate for cooperation in the university is a prerequisite for creating innovative environments in which academic and industrial perspectives can interact. We see cooperative and innovative processes as interdependent, and therefore both coordination and resource allocation take place on the strategic management level at the university and in a continuous dialogue with regional, national, and international partners.

The development process that was initiated at Karlstad University in 2002 has resulted in a strategy for cooperation in close association with regional partners. This strategy originates in two investigative analyses of the university's future strategic plans for cooperation and of the commercialization processes and the development of an incubator environment that were carried out in 2002. Both studies were based on national comparisons and visits to other universities.

6.1.2 *Mechanisms for regional participation*

The university management is actively involved in the cooperation processes and consequently in a position to identify regional needs.

The composition of the university board is conducive to making the board an important forum for strategic discussions on cooperation, since the majority of the members are appointed by the government to represent national and regional interests. The management is also represented in a number of other bodies where strategic discussions are going on, and in forums which in themselves are eminently suitable for defining regional needs:

- a) municipal contracts and annual follow-up visits in the different municipalities
- b) regular management level meetings with Karlstad Municipality, the Swedish Rescue Services Agency, StoraEnso, and others
- c) Uniska (Mid-Scandinavian University cooperation)
- d) the Growth Corridor project – combined efforts regarding regional growth
- e) partnership agreements with major industrial and public stakeholders
- f) member of the organization Regional Partnership, chaired by the County Governor, and including representatives of the public and private sectors, as well as trade unions – the Partnership members are joint stakeholders of the programme "Sustainable Growth in Värmland 2004-2007", with the responsibility to push for, communicate, and follow up on the implementation of the programme. Leadership is central to the Regional Growth Programme. One of the five challenges listed in the plan of action is the establishing of a "Partnership for Growth."
- g) external members in boards and committees
- h) the EU-programme Innovative Action
- i) the steering group Innovation Gardermoen
- j) other board memberships (banks and company boards)
- k) Western Sweden University Cooperation
- l) Penta Plus (Mid-Sweden university cooperation)
- m) VUS University cooperation in western Sweden
- n) cooperative committee with the County Council of Värmland

Apart from these bodies and arenas there are further forums and cooperative constellations with formal or informal Karlstad University representation:

- a) the Annual Värmland Convention
- b) the Regional Competence Council
- c) the Council of Education in Kristinehamn
- d) participation in steering committees for a number of advanced vocational training programmes
- e) participation in municipal development processes (Dalsland and Storfors, among others)
- f) partnership in regional development projects (e.g. EU projects, the House of Art)
- g) the Learning Centre Network
- h) research centres, partly co-financed, partly including external board members
- i) Design Studio Värmland
- j) the Drivhuset incubator (board membership and financing)
- k) the Inova Foundation (board membership and financing)
- l) common platforms for assignments or research, formed as a result of cooperation with cluster organizations (Flexografic Institute, Karlskoga Institute) and a long-term commitment on the part of the municipalities concerned

- m) agreement on research funding (e.g. the Swedish Rescue Services Agency, Böhler Uddeholm, the County Council)
- n) Open-House activities
- o) Hot Spot labour market day
- p) Higher Education Information programme for school leavers

A number of agreements support the regional cooperation process:

- the County Administrative Board regarding research funds
- the County Council of Värmland regarding research funds and cooperation
- a three-year municipal agreement (2003-2005): the agreement is followed up in annual revisions with each of the sixteen municipalities. Revisions are also made in conjunction with six other municipalities outside Värmland even without formal agreements.
- the Regional Growth Programme and working groups, the analysis and report groups, and the reference group related to it. As a result of the Regional Growth Programme, the university participates in various sub-processes, such as the entrepreneurship process in the focus area Industry and Commerce.
- The university has made agreements with eighteen municipalities on joint efforts for further training of teachers and for school development (RUC agreements).
- Agreements have been made with municipalities in Värmland (each municipality represented by 1-2 contact persons) on issues of social health care (IKU agreements). In addition to the three-year municipality agreement mentioned above, the combined efforts are financed by municipal social service offices.
- Regarding teacher education, the university has made agreements with the municipalities of the partnership schools, regulating costs for students' experiential studies placements.
- Regarding nursing programmes, there is an internship agreement with the County Council.
- Regarding clinical training in the dental hygiene programme, agreements have been made with County Council units as well as private clinics.
- agreement on a three-year project designed to promote interest in the natural sciences and technology at all levels of education ("Teknikerjakten") with the Ljungberg Foundation, Stora Enso, and municipalities.

6.1.3 Inventory of Knowledge Resources

In the past years, a number of regional processes have directly or indirectly yielded inventories or mappings of competence and expertise in industry, academia, and public institutions. The Regional Growth Programme and campaigns like the VinnVäxt programme (literally 'Gain Growth') initiated by VINNOVA are examples of this.

Also national initiatives, such as the work done by the Cooperation Delegation and the Recruitment Delegation and related consultancy services (Inno, Inregia) have resulted in competence inventories. In several cases, Cerut has investigated resources or described the mechanisms and the underlying factors regarding the state of knowledge, skills, and experience in the region, on behalf of the Research Centre Bergslagen, the County Administrative Board, different municipalities, and the university.

EXAMPLE:

Heaven and Hell in Bengtsfors

Bengtsfors is one of many municipalities that have worked together with Cerut, the Centre for Research on Regional Development. A study was made of the inhabitants' attitudes to Bengtsfors. The result was two-fold: on the one hand, people are satisfied with life in Bengtsfors, enjoy good health, and a high quality of life; on the other, they worry about the future and their jobs. The study covers the areas of economy, labour market, living environment, public transport, and communications in the municipality. It also deals with factors such as health, commitment to and participation in community life, and views on the future. The response frequency was satisfactory: 67.3% of the 1,000 persons older than 18 who received the questionnaire returned it.

The study will be used in different municipal departments. The open questions in the questionnaire yielded many good ideas and displayed people's active interest.

- It is important to make the most of the commitment expressed in the open questions. We have had lots of suggestions and will follow up the study in two years, says Sofia Magnusson, research secretary at Bengtsfors, who also says that continued cooperation with Cerut is being discussed.

Region Värmland has taken the initiative to take stock of municipal resources and to develop the network of learning centres. The County Administrative Board, Region Värmland, Karlstad Municipality, and the university are in the process of inventing and coordinating resources for the planning, implementing, and managing of EU-related projects.

6.1.4 National resources for regional cooperation

In addition to the regional frameworks mentioned above, there are also a number of national resources available for the promotion of regional (or national/international) cooperation, such as:

- a) The Cooperation Delegation (till 2004)
- b) VINNOVA
- c) The County Administrative Board
- d) Innovationsbron AB (formerly Teknikbrostiftelsen)
- e) Nutek
- f) LAN
- g) the Alfa Foundation
- h) the Ljungberg Foundation
- i) the KK Foundation
- j) the EU

Allocations of funds from the above stakeholders are restricted to projects limited in time, which could mean that the long-term aspects of development processes are curtailed. The funds are primarily allocated through:

- a) decisions made by the funder
- b) decisions made by the university's rector
- c) decisions made by the faculty board
- d) assessment of applications from university divisions

6.1.5 Incentives for and evaluation of regional cooperation

Regional cooperation occurs spontaneously in the course of regular teaching and research activities, or is initiated by support organizations within or outside the university. Despite the fact that Karlstad University has a long tradition of cooperating with regional stakeholders (see the introduction), and has started developing frameworks and methods for this, there is a need for further clarifying this mission and for improving incentives. Important steps in this process are the changes made in the organization of commission education and research and in the way successful examples of cooperation have been made public (internally and externally). The next step will follow automatically as a result of the reorganization of the university currently in process, through which steering, support, and evaluation of cooperation processes, among other things, will be developed further.

Examples of internal support structures at the university are the Cooperation Committee, the Karlstad University Professional Services AB and its network of internal experts in various disciplines, UNISKA representatives, human resources for contacts with learning centres, RUC, the student recruitment unit and Vägvalet, IKU, the library, and technical support to distance education. External support is more difficult to define. Worth mentioning are the education strategist and the person responsible for the development of learning centres of Region Värmland. The whole administrative organization will be overhauled in 2005 with a view to setting up clear and professional support functions in order to transfer more resources to education and research.

External (regional) evaluations of regional cooperation are carried out through:

- a) the Competence Council
- b) Partnership
- c) Evaluation processes as part of the work with the Regional Growth Programme

In these cases, coordination needs improving, however, as there is a lack of shared systematic procedure and policy.

National evaluations are made by and through:

- a) the National Agency for Higher Education in their quality assessment of Swedish universities' mission to cooperate (December 2004)
- b) the National Audit Office's report on cooperation (February 2005)
- c) the Cooperation Delegation and their final report (April 2005)
- d) the annual reports to the Government
- e) the requirement to report on the use of project funds (e.g. from Nutek)

Otherwise, governmental or local evaluations of regional success are limited. Assessment is usually based on financial reports on allocated project funds. Major governmental evaluations are carried out every third year.

Consequently, it usually falls on the university to identify good examples and to make these public through press releases, websites, conferences, and exhibitions. It is to be noted that the regional press shows a great interest in the university and industrial reports on cooperation with the university have increased (e.g. by Compare and The Paper Province).

6.1.6 Infrastructure facilitating cooperation

Karlstad University wants to provide a world-class university environment. We want to contribute to the local development of eastern Karlstad by working closely with schools, residential areas, business and service, and knowledge-intensive institutions in the district. We plan to remodel the university buildings to allow for more flexible solutions and thus support new modes of working

and learning, e.g. pedagogical workshops. The environment should inspire spontaneous as well as structured meetings for academic interdisciplinary exchange.

The Karlstad campus is situated east of the city centre, near the European highway E18 and the Stockholm-Oslo railway connection. Public transport from the city to the campus runs smoothly and efficiently. The area is currently under development to house a new commercial centre and possibly the relocated county hospital. A conference centre and a sports centre in the vicinity of the university are also under planning. There are sites for commercial development near the university, which further underlines the opportunities for growth in the area.

Karlstad University has attractive campus environments in Karlstad and in Arvika, which can and do bring people together in new ways, but this potential needs to be further explored and coordinated.

The close town-like campus environment will, in a long-term perspective, be developed to cater for 10,000 full-time students per year, and for an increased volume of doctoral students and research. Such an increase requires adaptation of the present premises and also expansion. Technological programmes and research will grow as a result of the planned “House of Engineering”. A world-class university environment includes facilities for extra-curricular activities, such as a sports arena, advanced computer networks, and student accommodation. Special attention will be paid to the environment at the Ingesund College of Music (about 80 km west of Karlstad) and communication between the two campuses.

The following are examples of how the university takes advantage of the infrastructure of regional organizations:

- a) Cooperation with Karlstad Municipality and the Compare Foundation to establish a new upper secondary programme in telecommunications, internet, multimedia, and entertainment (“TIME”). The university and companies in these branches offer lectures throughout the programme. University teaching occasionally takes place at the Karlstad Centre of Technology in the Valmet industrial area.
- b) The Nordea bank has for many years put their old premises at the university’s disposal as a “University Forum”. The premises were recently purchased by Karlstad Municipality, and are still used by the university for closed and open events.
- c) An indoor, multifunction arena in the campus area, to be used for sports, conferences, fairs etc. and holding 2000 spectators, is under planning.
- d) Karlstad Municipality has opened a direct bus connection to the university from the city centre and provides transport from the Välsviken train station to the university.
- e) The municipal housing corporation has adapted an apartment building for incubator use.
- f) Stora Enso opened part of their premises for the experimental activities of the Design Studio. Other facilities are also let to the university, such as labs, offices, classrooms, and occasionally conference rooms.

The following are examples of how external organizations take advantage of the university’s infrastructure in their daily activities:

- Agreements with municipal adult education in East Värmland (Kristinehamn, Storfors, Filipstad) concerning an introductory college year with guaranteed admission to natural sciences and engineering programmes, with teaching at the university and at the schools.

- A total of 100 pupils from a technical programme at an upper secondary school in Karlstad have so far spent a study week at Karlstad University.
- Many municipalities send groups of students to the university or use conference rooms at the university for meetings.
- Folkuniversitetet arranges events at the university library.
- Karlstad Municipality, the Chamber of Commerce, and Region Värmland use the Aula Magna or other rooms for conferences.
- There is external demand for the services of the University Conference Unit.

6.1.7 Cooperation with libraries

The first initiative for cooperation with regional libraries was taken when the university library catalogue was computerized in the beginning of the 1990s. A search station was placed in the municipal library so that people could access the university library catalogue, just as students could access the municipal catalogue. Since then, all regional libraries have developed into external nodes for students in the region. Karlstad University offers staff at libraries and learning centres further training in literature searches and the opportunity to participate in the daily updating of new information to make them better equipped to assist students.

The university library participates in the project “Libraries in Värmland: Focus on the User”. The objective is to coordinate all public libraries and audio-visual centres in Värmland by providing shared norms, excellent competence, quality in operations, and coordination of resources. Under discussion are the possibility of introducing a Värmland library card and joint marketing of the libraries, the production of audio books, and media resources. The library is also part of the industrial joint project “The Packaging Arena”, further described below.

The development of the library, as decided by the university board, towards a Learning Resource Centre offering support for flexible learning means that new tasks are added to the traditional work. One example is the foundation of Karlstad University Press, which publishes and distributes academic works, sometimes aimed at specific professional target groups, thus making the university and its research better known. The publishers were represented at the annual Book and Library Fair in Gothenburg, 2003. The publishing activities will also facilitate the transfer to electronic publishing.

6.2 Support to regional dialogue and joint marketing initiatives

6.2.1 The regional dialogue

Most contacts in the “regional dialogue” take place between students and faculty in the course of the daily work, but there are also other points of contact:

- a) the County Administrative Board (the business unit, officials, management)
- b) Region Värmland (learning centre managers, strategists for business and education)
- c) members of the reference group and the report group connected to the Regional Growth Programme
- d) industry, especially the Compare companies and the Packaging Arena (TPP and Flexografi), but also the Chamber of Commerce, control engineering companies, the Confederation of Swedish Enterprise, the network of municipal business officials
- e) The Partnership (management level)
- f) The Competence Council (departmental management level)
- g) the steering committee for the Advanced Vocational Training programmes (subject representatives and staff)

- h) board representation in incubators (Inova, Drivhuset)
- i) board representation in private bodies

Also the dialogue with the public plays an important part as regards cooperation and the stipulation laid down by law to disseminate information. Contacts with the media are important. The university reaches a large part of the public with information about education, research, cooperation, student activities etc. through press releases and various forms of contact with journalists. Over a hundred press releases are issued every year, of which 90% are published. The university also participates in the Swedish Research Council's web service, "Expert Answer", which is a question-and-answer column for journalists, and a forum for press releases. Some of these are translated into English and posted on partner websites in Europe. Through this channel, the university and the region reach out into the world to attract companies and people.

The university can also be seen on TV via Universitets-TV and Vetenskaplandet (literally 'the Land of Science'). The programmes, aimed at the general public and pupils, are shown on national TV and can be downloaded from the university's website.

Other forms of regional dialogue are seminars and popular science events. Members of Parliament from Värmland are regularly invited to the university for information and updates on the challenges facing the university.

6.2.2 External influence on decisions

When it comes to the university as an organization for education and research, the demands of external organizations are sometimes influential. A case in point is the County Council's requests for specific health care programmes. Industry and commerce also influence decisions on what programmes to offer and what research to invest in, e.g. Stora Enso, Valmet, Böhler Uddeholm, and others. Further examples of external influence are the views and requests coming from municipalities, the County Administrative Board, the Social Insurance Office, the Swedish Rescue Services Agency. External influence is especially strong in connection with externally financed professors, doctoral students, and commission education and research.

As an institution of public authority, the university is on the whole not influenced by external bodies.

6.2.3 Joint marketing efforts

The university and the region share the need to be seen and noticed in the world. The objectives are often the same: to attract young people to the region and to convey important messages to the public, industry, and people in authority. In a competitive media world, the efforts to make Karlstad and the university visible are greatly aided and made more economically efficient by cooperation and joint strategies. Under the rubric "Värmland sounds exciting", the County Administrative Board and Region Värmland have gathered a number of actors for a joint marketing campaign. The university has since long been an active participant in these activities. Examples of what is being done are the joint job vacancy advertisements in the business newspaper *Dagens Industri*, a national marketing campaign featuring the university and the region as a team, and a website with links to the partners. The regional marketing effort also includes PR activities aimed at making the region better known nationally and at showing a more aggressive and industrial side of the region than the traditional tourist image.

Karlstad Municipality markets itself as a university city and makes use of the university as a selling argument in negotiations with companies who might consider relocating to Karlstad. The

new students who are moving to Karlstad every year are an important target group for the municipality. The municipality, the student union, and the university work together to produce information to welcome the new students.

Several municipalities in the Karlstad region take advantage of the vicinity to the university and emphasize the opportunities it gives. The recent governmental decision to relocate a number of public services from Stockholm to the regions is an example of a context in which the presence of the university was a strong argument in favour of the Karlstad region.

Joint projects are highlighted in the university's as well as other organizations' newsletters, for instance Compare's newsletter on IT innovations, and The Paper Province's newsletter on paper and pulp developments.

The County Administrative Board regularly informs about the activities and measures taken within the framework of the Regional Growth Programme by advertising in a journal aimed at regional businesses. The latest advertisement centred on research and education and dealt with the cooperation between the region and the university to promote growth.

Much remains to be done, however, especially in areas beyond Karlstad. It is desirable, for instance, to establish closer cooperation with Arvika Municipality to make clear that the College of Music is part of the university and an asset to the region.

- www.varmland.se
- links on partners' websites
- Karlstad Municipality is marketed as a university city
- Some municipalities have started to use university cooperation as a marketing argument.

6.3 Evaluation and Mapping of the impact of higher education on the region

A systematic survey has been carried out in connection with the annual contacts with the municipalities. The survey does not include economic effects.

The results of the evaluations have been distributed to a limited audience, mainly to other universities. Statistics on the level of education in the region are mentioned and the fact that the level is lower than the national average and needs to be raised is generally recognized. Beyond this, there are few clear methods of making the university's role more visible. Generally, knowledge about the university's effect on the region is scant.

Cerut is a new research centre at Karlstad University. Its task is to generate, develop, and cultivate knowledge about regional development in conjunction with the surrounding world. The research and the dialogue pay attention to people's entire life situation, that is, work, leisure, and social relations. The region as living environment, sustainable development, and growth are key concepts.

The knowledge generated by Cerut is expected to be applicable to regional development, considerations, and strategies. One of Cerut's tasks is to disseminate its knowledge. There are a number of ways in which this can be done, for instance through joint projects or through popular science lectures, seminars, or conferences organized by Cerut. Researchers can be invited to speak on requested topics, and reports and surveys can be made public. Cerut is backed by Karlstad University, the County Council, the County Administrative Board, the County Employment Board, the Insurance Office, Region Värmland, and the Chamber of Commerce.

6.4 Karlstad University's regional commitment

The development of Karlstad University from the status as an institution for higher education ('högskola') to an institution for higher education and research (university) has meant unique opportunities to create a dynamic and open culture. The process was enthusiastically supported by regional industries and public service stakeholders, which laid the ground for the favourable attitude to cooperating with the surrounding world that was and is characteristic of our institution. This positive attitude was strengthened and further developed subsequent to the university's change of status in 1999. In the past five to seven years, Karlstad University has expanded in education as well as in research, and has recruited researchers nationally and internationally. The new research leaders have the ambition to build something new, and they also have an understanding of the importance of cooperating with external partners, not least from a financial perspective. This development was made possible thanks to an open-minded culture and attitude rather than being a result of directives, and it was furthered by the process of change and innovation that preceded and followed the ratification. There is, in other words, a good basis for making cooperation an integral part of the university's education and research.

In addition to the contacts and cooperative activities that take place daily in research and education, efforts to promote development have been made to strengthen the process of cooperation throughout the university.

In 2002, a committee was appointed to evaluate the cooperative efforts and the possibilities of setting up a university-owned holding company. A fundamental finding of the evaluation was that the concept "the third task" should be avoided as it was commonly conceived of as something unconnected with research and education. Cooperation should rather be a normal way of developing research and education at Karlstad University and at the same time serve our partners.

As the 2002 analysis showed that the organization of cooperation was ineffective in terms of management, strategy, and links to the core activities, a coordinator was appointed at executive level with the task of developing strategies and methods for the university's cooperation processes.

The development of support structures and steering processes has resulted in the following:

- Cooperation and innovation issues have become part of the concerns of the university's management. Responsibility for strategies and processes has been assigned. (2002)
- Industrial competence has been added to the university's management. (2002)
- Creative meeting points have been established on campus, e.g. Designstudio Värmland. (2002)
- Support to the development of entrepreneurship and business (Inova) has been professionalized, and there is increased focus on clients. (2004)
- Alumni networks have been established and developed. (2003)
- A website has been constructed as a support in the realm of intellectual property. (2004)
- A structure for partnership programmes has been established. (2004)

The reorganization that is currently in process at Karlstad University, affecting management and administration, is taking place with a clear view to defining tasks and accountability, as well as to making more resources available at faculty and department levels.

This also means that the cooperation effort is an integral part of the management tasks at Karlstad University and a natural way of developing research and education. This task is not restricted by

geography; rather, relations are established locally, regionally, nationally, and internationally. The extra-regional networks are assets which the university can bring to the region.

6.4.1 Adding and exchanging competence

In the course of the development from university college to university and through the close cooperation with society that marked this process, many faculty members have brought experiences from non-academic environments into the university.

For longer or shorter periods, the university also adds to its competence by recruiting externally for educational purposes, e.g. supervision. This applies to legal experts from the County Administrative Board, municipal officials, leaders of research in the paper and steel industries, medical specialists, master of science in engineering, experts from the Social Insurance Office, dentists, and artists.

A number of adjunct professors continue the tradition from the pre-university period when such appointments guaranteed research quality. Today, there are, for instance, four adjunct professors from the forest industry, financed by different companies.

EXAMPLE:

Adjunct Professors in different subjects:

Mohammed Abdel-Rehim	Analytical Chemistry
Jiri Basta	Pulp Technology
Göran Bengtsson	Paper Technology
Niels H.H. Heegaard	Analytical Chemistry
Holger Hollmark	Paper Technology
Staffan Jansson	Public Health Science
Per Jonsson	Paper Technology
Bengt Kronberg	Physical Chemistry
Börje Leidhammar	Legal Science
Lars-Harms Ringdahl	Public Health Science
Pekka Salminen	Surface Treatment Technology
Lennart Stolpe	Paper Technology

6.5 Management of human and financial resources

Qualification requirements and assessment criteria for different categories of teachers are stipulated in section 14 of the Employment Regulation. One area mentioned as a merit is experience of societal functions that can be judged relevant to the university's cooperative task.

As regards promotion from lecturer to senior lecturer on the grounds of special qualifications, the regulation defines ability to cooperate with the surrounding world as one of three possible skills (14.2.1). Such a skill can, for instance, have been demonstrated by developing or applying new forms or methods for disseminating research information, or for distance and commissioned education.

One criterion for pedagogical skills (15.2) is defined as the ability to communicate, which is an important aspect of cooperation with the world outside the university.

Developing competence among management and staff in forms of cooperation has not been done in a structured way so far, but it is considered as part of the ongoing reorganization. Informally, exchange of experience is taking place on the management level and in some networks (e.g. through contract research), but there is room for further steps to be taken.

6.5.1 Financing regional cooperation

Resources are generated partly through management efforts and networks, partly through project applications and initiatives by support and research groups. The cost of regional commitment is to a great extent carried by the university and to a lesser extent by the municipalities and the County Administrative Board. To ensure long-term development and a common agenda for regional development, greater “investments” in the university’s inner structure could be made by regional stakeholders.

The regional stakeholders, however, work together to find new models for funding joint projects. The EU programme “Innovative Measures” and possible outcomes of the present restructuring of the armed forces are examples of this.

6.6 Creating a new organizational culture

The board of Karlstad University approved the Vision 2015 document last year. The implementation of the strategies to achieve the objectives of the vision will start in 2005.

Extracts from the Karlstad University’s Vision 2015:

Education and research at Karlstad University are characterized by openness and close contact with the world outside.

We contribute to the growth and attractiveness of the region. Progress is made in close association with industry and public institutions. We partake in the regional innovation networks. The University is the region’s link to the international academic community. Our study programmes are developed in harmony with changes in Europe.

- Students, faculty and researchers participate in public debates on current issues and the university is known for its commitment to society.
- Our study programmes and research have a global perspective. Exchange programmes for faculty, researchers, students and staff with universities abroad have increased markedly and are a regular part of professional development at the University.
- Karlstad University is a respected member of the world-wide academic community and a valuable resource nationally and internationally. We participate actively in national networks for undergraduate studies and research.
- Undergraduate and graduate programmes are designed on European models and we attract students from all over the world.

As previously mentioned, the university has a history of close association with the community, and the strategies above are grounded in this tradition. The introduction of a new organization as of 2006 will support our efforts to implement strategies and plans of action for the university’s role in, and contribution to, regional development.

6.7 Interpersonal Contacts – workshop on cooperation

The following is a summary based on the discussions and presentations from the workshop “Interpersonal Contacts – a Prerequisite for Growth.” It is written by the workshop leader. For further information see appendix 1.

6.7.1 *Openness and interdependence are the basis for cooperation, and cooperation takes time*

In most cooperations, the partners labour under different conditions. The university prides itself on being an “open” institution and has phrased its ambition for the cooperation effort as follows:

The demands placed on a modern university force us to partake actively in society, and we intend to be one of the most successful universities in Europe in this respect.

To create, cultivate, and disseminate knowledge requires interaction with the object of study. Therefore, research and education must take place in close association with society and the organizations that are expected to benefit from the knowledge. Historically, universities have had a more aloof and hierarchically privileged position in society than they have today.

A company’s or municipality’s demand for openness and its dependence on the rest of society are a different matter. Openness and interdependence may not be equally attractive for all stakeholders. The organizational culture and discourse in private companies often has special foci, e.g. developing competitive strategies and keeping product development and economic plans secret. Responsibility for, and loyalty to, the region are of a completely different nature if compared to the university.

The business idea of a university can be said to be “creating knowledge together”, and a lot of ambition, time, and communication is invested in this, which becomes clear in the self-evaluation and in the workshop.

A first reflection is that development takes time, is a long-term effort, but has already come some way.

6.7.2 *The formal meetings work well and can be developed*

Cooperation almost has a messianic ring to it in the workshop, which clearly shows that the participants in the formal meetings generally agree that cooperation is something good and can strengthen growth and development. However, many would like to see more action in relation to all the talk.

However, there are indicators that the talk has to go on and continue to represent a bigger aspect of cooperation than action. There is still no shared discourse on cooperation; instead, the partners’ individual discourses seem to be understood as models for the future, shared discourse. Business thinking thus implies “being able to bill every day spent on cooperation” and that “every action must yield an economic advantage”. The thinking at the university is, rather, that “we have the superordinate knowledge that you need” and “you have to develop a demand for us”, while the social logic is that “what we achieve must be for the good of citizens and patients” and “we are not so sure that research and academic knowledge is useful to our politically determined activities in the municipality”. These ways of thinking should be abandoned in favour of a more unifying discourse.

The participants in the formal meetings will profit by further discussing the possible contents of cooperation. The continuity of the contacts is a plus, and the highest hierarchical levels of the cooperating organizations are represented. A deeper discussion of the shared “public” and social responsibilities, a clearer definition of what cooperation really means, and concrete, scheduled objectives might help to overcome the linguistic and cultural barriers.

6.7.3 *The relationship between formal and informal meetings*

In the workshop, it emerged that there is a strong connection and interplay between formal and informal forums. The formal meetings legitimize cooperation and result in visions and objectives, but presuppose many spontaneous, informal, and often confidence-building contacts and meetings.

It was also pointed out, however, that informal forums for communication are no less subject to norms. “There, one wants to have fun, do something else, not think of serious things and work, not have to assume the official role.” The informal forums, just like the formal ones, can also be quite closed and hard to get into.

If the informal forums are to be strengthened, this has to happen by way of identity-creating, cooperative measures in society at large, so that every individual supports the idea of regional cooperation even in private and informal contexts. Participants in formal forums might also profit by employing some more relaxed forms of communication in addition to the formal ones.

6.7.4 *Communication needs to become broader and deeper within the own organization*

Cooperative efforts on different levels take place simultaneously and often have a paradoxical relation to each other. Modern organizations are basically structured hierarchically even if some delegation and decentralization of power has taken place. Internal communication is hierarchically organized, too. But there is a paradox here: where there is cooperation with one level of the organization, it is barely affected by the superordinate levels. There is normally no coordination, either. For example, people on the lower level will not consult the higher levels when planning to cooperate with the outside world. Yet the organizational and hierarchical norms still affect each individual’s communicative actions, i.e. subordinates will be aware of the unspoken hierarchical norms and their limited power to take action. Employees do not build relations in any which way with representatives from other organizations and do not make unsubstantiated promises concerning the own organization’s contributions, but stick to the existing hierarchical order.

The employees on all organizational levels must be informed and have a chance to understand the value of, and be given, clear cooperation assignments and the corresponding authority to fulfil them.

6.7.5 *Imbalance in the demands for openness, and between taking and giving*

In the workshop, it became clear that there exist high demands on the university’s openness and ability to pursue activities other than its main tasks. However, more reciprocity might be called for when it comes to opening one’s premises and activities to each other.

6.7.6 *There are many whom communication does not reach and who do not even know that they have a role to play in cooperation*

One is tempted to say that students live in their own little world, even though we all do. However, social responsibility, or the fate of the university, is not part of general student discourse. It is no coincidence that only the representative of the doctoral students, but not the representatives of the

undergraduate students, have come to this workshop, which indicates that a pool of doctoral students should be created and that cooperation and identity formation should become stronger aspects

6.8 Imagine Värmland Providing Equal Opportunities to All – workshop on gender analysis

The following is a summary based on the discussions and presentations from the workshop “Imagine Värmland Providing Equal Opportunities to All”. It is written by the workshop leaders. For further information see appendix 1.

The workshop leaders note that a big change has taken place. We have a new situation where a large group of core stakeholders in the region – both women and men – are willing to discuss equal opportunities. It is also encouraging that these issues are taken very seriously and that there is obvious agreement that they are of key importance in the discussion of sustainable regional development.

Many constructive and relevant suggestions were made for solutions to the challenges identified during the day. One can see that the county has taken a big step towards redrawing the map. The region gradually begins to understand the problem.

Yet the main challenge remains, i.e. to convert the suggestions and ideas into concrete projects. Many steps still need to be taken. It is therefore important to link the equality discussion to the discussion in the previous workshop on forms of cooperation. It is by finding forms for regional stakeholders’ joint efforts to promote equality that a process of change can be initiated.

In this context, it is also important to note how important it is that there is an awareness of equality issues on all organizational levels. By discussing these issues at the management level, gender equality gains the status it deserves, and this will make it easier to comment on inequalities in practical contexts.

While the workshop focused on the specific situation in Värmland, the group discussions and the resulting suggestions were not limited in this sense and are, in fact, relevant both to the national and European levels. One needs to be aware of the fact, however, that inequality is not the same in different countries and regions and may be linked to specific problems and challenges. Therefore, it is important to carry out this kind of analysis for each region. Only then can suggestions be formulated that deal directly with the problems one wishes to address.

6.9 Värmland is not Enough – workshop on regional enlargement

The following is a summary based on the discussions and presentations from the workshop “Värmland is not Enough”. It is written by the workshop leader. For further information see appendix 1.

6.9.1 *Different purposes require different regional enlargements*

Apparently, regional enlargement is considered an answer to the question how business, welfare, and living environments, among other things, can be protected and developed. “Värmland is too small”, it said in the invitation to this workshop. I share this view to a large extent, even though, as always, there remains room for doubts. It is, on the other hand, important to realize that different kinds of regional enlargement fulfil different purposes, and that they probably have to take place simultaneously.

Enlargement in the sense of *increased mobility within the region* reduces the geographical limitations of the labour markets, but also has to do with the development and supply of competence, as well as with trade, culture, sports, identity-forming gatherings, etc.

Enlargement in the sense of *larger communities* mainly has the purpose of facilitating cost-intensive activities. This includes health care, infrastructure, and the supply of competence.

Enlargement in the sense of *increased autonomy* has to do with ethics (people's right to self-determination) and legitimacy, which means that the respect for, and acceptance of, decisions and laws tends to increase if the distance to the decision-makers is kept short.

However, one has to take another aspect of good governance into consideration here, namely efficiency. If the democratic aspect rules supreme, there may be a lot of self-determination over very little. Good governance is not only democratic. It also requires resources and the ability to take action. At least when it comes to cost-intensive activities, there needs to be a compromise between autonomy and the possibility to get something done. Otherwise, legitimacy will be lost regardless.

Enlargement in the sense of *bigger alliances* fulfils purposes having to do with business, supply of competence, and knowing what is going on, among other things. Through interdependence with stakeholders outside the region, and sometimes very much outside, the region can sell more goods and services, and gets access to the offerings of other regions. Alliances also provide knowledge, competence, and information. The bonds of friendship that alliances create must not be underestimated either. Some alliances provide the answer to the question who will defend the region when there is a crisis.

My impression from the strategic discussions on regions – and not just from this workshop – is that in Värmland, the focus is often on *larger communities* and that one geographical direction for enlargement has to be pointed out, which is usually East or South-West.

6.9.2 Exaggerated regionalistic ambitions

It seems as if the discussions on regions in Värmland are encouraged, in an uncritical manner, by the discussions and processes that take place in all of Europe and that have to do with the idea of a “Europe of the regions”.

These processes find their expression in no less than 30 inter-regional cooperations and the Regional Committee of the EU, among other things. The Europe of the regions is about transferring power to the regions – to some extent from the EU level, but mostly from the national level. According to this vision, national borders become “thinner” and Europe a mosaic of (hopefully) successful administrative or political regions.

Among the motives for a Europe of the regions are improved development dynamics and the opportunity to deal with the lack of democracy and legitimacy in the European Union. Both these motives are reasonable and important, and it is easy to get carried away by the new ideas. Things will go wrong, however, if the result is provincialism (or “regionalism”), i.e. if thoughts and actions are based on the assumption that the region one happens to belong to corresponds precisely, or almost, to the kind of region that the Europe of the regions is all about. It would be unfortunate if the term *region* were used to subsume very different entities with very different premises.

There are at least two disadvantages of such a provincialist interpretation with respect to the idea of a Europe of the regions. One has to do with the fact that at least one of the preconditions for regional dynamics seems to be population size. The County of Värmland has 275,000 inhabitants. Continental regions with some degree of autonomy are rarely that small. Successful regions such as Nordrhein-Westfalen (18 million) and Niedersachsen (8 million) in Germany, Rhône-Alpes (5.7 million) in France, Toscana (3.5 million) in Italy, and Catalonia (6.4 million) in Spain are all much bigger. Even Tyrol in Austria has 700,000 inhabitants.¹

Stockholm is considered a successful Swedish region in many respects. The County of Stockholm has 1.8 million inhabitants. If the counties of Värmland and Örebro were to form a single region, as is being suggested these very days, it would comprise 0.5 million inhabitants. Värmland and Västra Götaland would comprise 1.8 million people together, and a region from Värmland to Uppsala 1.4 million.²

As a counter-argument to the need for regional enlargement in terms of population, the successes of the Republic of Iceland have been pointed out. Iceland has 290,000 inhabitants, i.e. about as many as Värmland. Perhaps Iceland can serve as an example that it is perfectly possible to succeed in global reality without enlargement? No, it cannot. Iceland certainly shows that success is possible without enlargement in the sense of “larger communities”. Yet Iceland’s success has been made possible by other types of enlargement. Enlargement in the sense of *increased autonomy* was fully completed with the secession from Denmark in 1944. And *growing alliances* is the kind of enlargement that has made the country’s recent economic success possible.

The other disadvantage of a provincialist interpretation with respect to the idea of a Europe of the regions is that it may underestimate the need for the national state in a region such as Värmland. As Swedish regions such as Stockholm, Göteborg, and Skåne, as well as other European regions grow stronger while the national states become weaker, one may wonder where Värmland will be able to find friends in future. Maybe the national state of Sweden is the entity that best corresponds to an acceptable region in a Europe of the regions? Maybe Värmland needs to have this national state as its best friend?

6.9.3 “There is too much pottering about in Värmland”

The third and final reflection is very intuitive and personal. It has to do with the fact that there is a lot of activity and a lot of commitment in Värmland when it comes to regional dynamics and development. The business sector, the Chamber of Commerce, public agencies, the university, and, not to forget, all the associations and networks in civil society – we all contribute to the larger cause. And all these parties have representatives who cooperate and discuss with each other. So far, so good.

Allowing for the possibility that I have not done my homework well, am poorly informed, or even completely ignorant, my impression is that “there is too much pottering about in Värmland”. The expression is not mine, but was used by a participant in the workshop I reflect upon here. I have forgotten who and am not sure we agree on its meaning, but to my mind, it expresses three things:

a) A lot of good work is being carried out, but there is no vision shared by the inhabitants of Värmland regarding *what we are actually doing and where we are going*. This is a management issue. We need more Council Administrative Board! Or more Region Värmland! Or more partnership! But definitely more leadership.

¹ Figures from the Assembly of European Regions.

² Figures from Prof. Sune Berger, Karlstad university.

b) A lot of good work is being carried out, but are we too introvert? Is there too much pottering about within the borders of Värmland and with only people from Värmland participating? It is not exactly the impulses from the outside that catch my attention in regional discussions in Värmland. Do important actors in Värmland travel abroad too seldom? Do we enlist too few consultants? Do we provide too little space to those without undisputed access to the main meeting places for regional issues?

c) There does not seem to be a tradition to discuss the disadvantages of what has been done and of what has been decided should be done or not be done. The discussion in the workshop clearly illustrates this. It is easier to point out the positive aspects of good solutions than the negative ones.

This is an attitude that seems strange, at least to a social scientist. Discussing disadvantages is not the same as opposing oneself. It means, rather, actively participating and testing the sustainability of the decisions to be taken or of the work already done. Even if an action is primarily positive, it also has its drawbacks. These are taken up in plans and reviews, one may hope, and they are certainly discussed in connection with some politicized regional issues, most prominently the question of hospitals. In Värmland, regional issues are organized in a clearly dialogic spirit, with many and frequently agreeing partners involved, but the drawbacks of solutions will need to be included in the discussions, even after decisions are taken.

7 CONCLUSIONS – BEYOND SELF-EVALUATION

7.1 The process

7.1.1 *Parallel processes*

Some on-going processes, especially the carefully formulated Regional Growth Programme, constitute one of the basic pre-conditions for the participation of Värmland in the OECD evaluation. To these may be added the evaluation, in 2004 by the National Agency for Higher Education, of how well Swedish HEIs cooperate with society at large, VINNOVA's efforts in the same year to develop innovation environments, and the regional cluster processes, among others.

Yet another process that has been going on at the same time as the OECD self-evaluation is the restructuring of Swedish defence. The County Governor of Värmland has been commissioned to suggest growth-promoting measures in order to create substitutes for the jobs that were lost together with the closed-down regiment in Kristinehamn. This work involves all regional stakeholders, and coordination had to take place to avoid duplication of effort. The results of the self-evaluation process have been used in connection with the restructuring of Swedish defence, and vice versa.

This self-evaluation has also been helped by Karlstad University's efforts to formulate a new vision document and new strategies in 2004. At the moment, Karlstad University is in the middle of a fundamental transformation. A new organization will be in place on 1 January 2006, management will be strengthened, and the administrative services will be improved. These changes create the opportunity to put into practice several of the conclusions reached in the course of the OECD process. Due to the restructuring of Swedish defence, resources may also become available for implementing joint measures at the regional level.

7.1.2 *Objectives*

A common learning process has been one of the objectives of the project. This has been realized through work in the steering committee, in the working group, and in workshops, and through parallel processes (cf. above). A common vision of the ways in which Karlstad University can contribute to the development of Värmland, and vice versa, needs to take shape.

Another objective is to see national, regional, and institutional systems and activities from an international perspective, and to receive concrete advice for improvements.

An important aspect of the continued learning process is the evaluation by the OECD (the visit and the report), as well as the comparison with other regions on a global level. These things will contribute to increased awareness and support with respect to both the public (through the media) and politicians (through visits).

7.1.3 *Workshops*

The workshops that were organized around three different topics were not prescribed by the OECD guidelines, but provided further opportunities to elucidate Värmland's situation from different perspectives. All the workshops had participants from the OECD project (steering committee/working group) and invited actors such as entrepreneurs, other organizations, and authorities. It was considered important that those invited would contribute with perspectives not represented by the usual participants. In the following, a brief summary of each workshop will be provided. Conclusions and details can be found in the previous chapter and in the appendices.

Interpersonal Contacts (31 August 2005)

The topic was meeting places for cooperation between university, business sector, and social actors, as well as the communication in those places. The workshop had around 30 participants.

The immediate aim of the workshop was to increase the knowledge of the existing meeting places and to assess their strengths and weaknesses. The term *meeting places* was used to denote formal and informal venues for physical meetings between a few, many, or special groups of individuals. This way of defining meeting places thus excluded electronic or mass-media communication and information activities. The conditions for meeting places were also discussed: How does a large organization such as the university establish rapport with an entrepreneur with few or no employees? What kind of platform is needed to support the meeting?

The process of formulating a definition led to a focus on human interaction. The discussions stressed the need to learn more about informal meeting places and human interaction, not only the organized forms of cooperation already identified in the self-evaluation work.

Regional Enlargement and Alliances (14 September 2005)

The approximately 25 participants in this workshop came from politics and social administration, industry and business, and the academic world. Most of them work in Värmland, but there were also some Norwegian participants.

In the workshop, four different meanings of the concept of enlargement were discussed:

1. Enlargement in the sense of *increased mobility within the region*

In general, this seems to be the most common sense of regional enlargement. Enlargement in this sense means increased, more or less *daily*, access to certain activities. Increased local labour market regions are an example.

2. Enlargement in the sense of *larger communities*

This kind of enlargement is about pushing back borders and definitions with respect to geography and people, so that more are connected by e.g. economy, politics, or identity. The existing health care region from the county of Uppsala to Värmland is an example of such a regional enlargement. The so-called Growth Corridor may become another.

3. Enlargement in the sense of *increased autonomy*

This kind of enlargement has to do with power. Such an enlargement takes place, for example, when the national government relinquishes decision-making rights to the County of Värmland, if only by transferring resources and responsibilities from the County Administrative Board to Region Värmland. Such an enlargement also takes place when the EU transfers resources or responsibility to some regional organ.

4. Enlargement in the sense of *mutual dependence (alliances)*

This kind of enlargement is about more alliances between stakeholders within and outside a region. Such enlargement takes place, for example, when industrial ownership and production are located in different places, when researchers work together across the boundaries of their own universities, in town twinning, and in starting a cooperation with a lobbying office in Brussels.

The Gender Perspective (7 September 2005)

This workshop had about 20 representatives from private and public stakeholders in and outside the region. The workshop was mainly interactive. The participants' contributions in the group discussions constituted most of the content, and the objective was to formulate suggestions so constructive that they could be incorporated in the final self-evaluation report.

The discussion was based on some of the topics taken up in the self-evaluation report, but under the heading "Imagine Värmland Offering Equal Opportunities to All". In order to motivate the discussion of these issues, a map was provided, showing how the municipalities in Värmland position themselves with respect to the equality index developed by Statistics Sweden on the basis of a number of variables tested for gender. Värmland as a whole is on a par with some of Sweden's most segregated municipalities when it comes to gender. The workshop participants agreed that this is an obstacle to sustainable regional development. This was the common point of departure for the discussion, and the main question was what needs to be done in order to increase gender equality.

What follows are excerpts from the workshop leaders' reflections:

The workshop leaders note that a big change has taken place. We have a new situation where a large group of core actors in the region – both women and men – are willing to discuss these issues. It is also encouraging that these issues are taken very seriously and that there is obvious agreement that they are of key importance in the discussion of sustainable regional development.

Many constructive and relevant suggestions were made for solutions to the challenges identified during the day. One can see that the county has taken a big step towards redrawing the map. The region gradually begins to understand the problem.

Yet the main challenge remains, i.e. to convert the suggestions and ideas into concrete projects. Many steps still need to be taken. It is therefore important to link the equality discussion to the discussion in the previous workshop on forms of cooperation. It is by finding forms for regional stakeholders' joint efforts to promote equality that a process of change can be initiated.

In this context, it is also important to note how important it is that there is an awareness of equality issues on all organizational levels. By discussing these issues at the management level, gender equality gains the status it deserves, and this will make it easier to comment on inequalities in practical contexts.

While the workshop focused on the specific situation in Värmland, the group discussions and the resulting suggestions were not limited in this sense and are, in fact, relevant both to the national and European levels. One needs to be aware, however, that inequality is not the same in different countries and regions and can be linked to particular problems and challenges. Therefore, it is important to carry out this kind of analysis for each region. Only then can suggestions be formulated that deal directly with the problems one wishes to address.

7.2 Further steps

During the self-evaluation process, a number of ideas and suggestions for strategies, measures, etc. have emerged, not least at the three workshops. These have to be compiled after the assessment and report by the OECD, and we have to decide on a common prioritization.

Our suggestion is to make this prioritization a part of the update of the activities connected to the Regional Growth Programme, possibly with new resources being available due to the restructuring of national defence. Coordination of these efforts should be possible since all regional stakeholders are involved.

A special plan of action should be formulated, focusing on the role of national systems and on the conclusions that should be prioritized. As a continuation of the self-evaluation, further research might be initiated. Areas have been suggested for further investigation and these should be prioritized, too.

The restructuring of national defence has highlighted the role of the university in the development of Värmland and has also contributed to an improved dialogue between the business sector and the university. The different measures planned are based on the current economic structure and on its potential development through cooperation with the university.

The following is an excerpt from the report *Varför växer inte Värmland?* [‘Why doesn’t Värmland grow?’] by Inregia (2005), which the County Administrative Board and Region Värmland had commissioned in connection with the restructuring of national defence:

“A great deal speaks in favour of Värmland trying to become an internationally competitive maker region in cooperation with surrounding counties, especially the fact that, in a national perspective, the industrial sector is strong. Several municipalities in Värmland have a very pronounced industrial tradition. This should constitute the basis for future growth in Värmland. The work carried out in connection with the Regional Growth Programme and the task assigned to the County Governor focuses on promoting innovative clusters, R&D, education, and entrepreneurship. There is strong theoretical evidence that these factors can explain, to a large extent, the weak economic growth in Värmland during the last ten years. There are no strong clusters in the county yet, even though some potential clusters would have a good chance of becoming internationally competitive. There is significant R&D and education in the county, not least because of the presence of big companies and because Karlstad University carries out research and education on a large scale. Inova, among others, makes efforts to promote entrepreneurship.

There is thus the embryo of an organizational structure that can contribute to economic growth taking off in Värmland. But the ability to cooperate, positive attitudes to change, labour mobility between different municipalities, and entrepreneurship need to become more widespread. Growth-promoting work in the county requires the key stakeholders’ agreement on very strong, long-term efforts in favour of a small number of centres for competence and development. In these, education, R&D, entrepreneurship, and business development are connected through the formation of multi-disciplinary teams working with innovative processes and with the aim to increase the number of new products and of new companies in Värmland.”

We now have ample information on which to base our actions. However, a broad understanding of the problems and opportunities, of the roles of the different stakeholders, and of their ability to take action is needed if one is to succeed in developing Värmland.

The process continues.....

TietoEnator^{IT}
Building the Information Society



Länstyrelsen
Värmland