

Baltic Rural Broadband Project

Baseline Situation

Värmland / SWEDEN

2006

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1: Facts about the region

1.1: Demographic Information

Question 1.1.1: Structure of Population

The population of Värmland is 275,000. The seat of County Government is Karlstad, located on Vänern Lake - one of Europe's largest lakes. The county comprises 16 municipalities. Two of these have less than 5,000 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.

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.

Question 1.1.2: Geography

The area of Värmland is 19,371 km². Värmland is located in central Sweden, bordering with Norway. The main city of Värmland is Karlstad, with approximately 130,000 inhabitants in its labour region. Karlstad is about 300 km from the capital Stockholm in the east, and 250 km from Gothenburg to the south. Oslo, capital of Norway, is 250 km to the west. The County of Värmland is one of the most forested in Sweden, with almost 70 percent of its area being forested. Eight percent is agricultural land and three percent is built-up.

1.2: Economy

Question 1.2.1: Industry/Workforce

The majority of gainfully employed (81,171 = 69 per cent) in 2004 worked in the service sector. 31,216 worked in the manufacturing sector. In 2004, approximately 4,415 of the total of 117,716 of gainfully employed in the County of Värmland worked in IT sector (3.2 per cent). Majority of them were engaged as consultants.

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.

Question 1.2.2: Economic power/Financial strength

Karlstad in Värmland is one of the world's most important regions within the pulp and paper industry. This has had a great impact on the consultant sector, where many enterprises work with the forestry industry as their specialty. Other strong areas of competence are signaling, mobile communication and related services to these areas. Karlstad is the sixth largest region in Sweden in terms of number of employees in the ICT (Information and Communication Technology) sector.

According to Statistics Sweden, there are about 1200 exporting and about 1700 importing companies in Värmland. Most of these are surprisingly small. 50 companies exported each for more than SEK 50 million in 2003. For 30 of these companies, exports surpassed SEK 100 million.

Many major international industrial companies – Stora Enso, Billerud, TetraPak and Volvo, for example - are located in Värmland, which means that it offers highly qualified and experienced staff, as well as opportunities for regional partnerships. Among the county's leading business sectors are forestry, packaging, automotives and automotive parts, telecommunications and IT.

The gross domestic product (GDP) per capita is SEK 286,000 (EUR 31,380). The gross regional product per capita is SEK 245,000 (EUR 26,882)

Question 1.2.3: Employment/Unemployment

The total number of unemployed in the County of Värmland in 2005 amounted to 12,156 (7.2 %). The total number of unemployed also includes those who are in labour market schemes. In 2005 this category amounted to 5801 persons (3.4%). The total rate of unemployment, i.e. the percentage of registered unemployed people in working age, is the major factor describing the situation in the labour market. The total unemployment rate in Värmland is higher than the national average (the national average is 6.3%). However, if those in market labour schemes are excluded, the rate of unemployment in the county is lower than the national average.

Question 1.2.4: Important Enterprises

Two important enterprises in Värmland are Metso Paper (560 employees in Karlstad) and Kvaerner Pulping AB (470 employees in Karlstad). Metso Paper is one of the worlds leading manufacturer of machinery for soft paper and carton board. Kvaerner Pulping AB is 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.

The largest private sector employers: ranking 1-10

Company name:	Number of employees:
1. KONSUM VÄRMLAND	1925

2. BILLERUD AB	1140
3. STORA ENSO SKOGHALL AB	1225
4. VOLVO WHEEL LOADERS AB	900
5. UDDEHOLM TOOLING AB	780
7. WASABRÖD AB	625
6. METSO PAPER KARLSTAD AB	560
8. TIETOENATOR R&D SERVICES AB	500
9. SWEBUS AB	475
10. ROLLS-ROYCE AB	450

Question 1.2.5: Costs of living

The average income from employment and business during 2004, age 20-64 years, was for Värmland SEK 213,000 (EUR 22,816), and for the country SEK 228,000 (EUR 24,423).

The average disposable income per household during 2003 was SEK 123,778 (EUR 13,625) in Värmland. The average disposable income per household in the country was SEK 141,294 (EUR 15,553).

Compared to major cities in Sweden, costs are much lower in the Värmland region, with far cheaper office and housing accommodation.

1.3: Infrastructure

Question 1.3.1: Educational institution

The municipalities have the responsibility for all but higher education, therefore operating pre-schools, compulsory schooling, and upper secondary and adult education. Pre-schools welcome children at the age of one to five; almost all children of those ages in the municipalities attend pre-school. At the age of six children enter the pre-school class, which is integrated with primary school. Compulsory education comprises nine school years, where children in most cases start school at the age of seven. After completing compulsory education, students apply for admission to the upper secondary schools. Furthermore, citizens may attend adult education for additional learning and specific examinations, or for degrees.

There are 166 compulsory schools in Värmland, and 23 upper secondary schools. Each municipality also has adult education.

Karlstad University, with 11,000 students, is located in the outskirts of the city. The university is financed by central government and it is one of the largest universities in Sweden outside the traditional university towns.

Question 1.3.2: Traffic & Transport

Karlstad, the county seat and largest town, is located close to high-way E18, linking Oslo, Stockholm. The strategic position between the capitals of Sweden and Norway makes Karlstad to a great city of business. Getting to Karlstad is easy. It is 300 km - or a 55-minute flight / 2 hours and 20 minutes on a high-speed rail link - from Stockholm to Karlstad, 250 km from Gothenburg and 200 km from Oslo.

By Air:	Karlstad - Stockholm - 55 min.
By Car:	Karlstad - Gothenburg - 3 hours. Karlstad - Oslo - 3 hours.
By Train:	Karlstad - Stockholm - 3.5 hours. Karlstad - Gothenburg - 3 hours. Karlstad - Oslo - 3 hours. Karlstad - Stockholm - 2.20 hours.

There are three airports in the county, in Karlstad, Hagfors and Torsby. Number of passengers vary between 1039 passengers for Torsby and 144,365 passengers for Karlstad (87 % of all passengers), during 2005.

Question 1.3.3: Situation of living

Together with the other Nordic countries, Sweden often comes out top in descriptions of national welfare in different countries. Regional differences are small in an international perspective, but they do exist and generally follow a clear centre-periphery pattern. The total income from gainful employment is lower in Värmland than in Sweden as a whole. The Karlstad region is quite close to the national average.

The average price for one- or two-dwelling buildings in Sweden is today (2006) SEK 844,000 (EUR 92,818).

Prices on agricultural land have since 1995 increased on average with almost 200 %. There are big differences in prices between different parts of Sweden. In the plain district of southern Sweden the prices are on average 17 times the prices in the north of Sweden. The average prices on agricultural land in Sweden estimated year 2005 to 31,100 SEK/ha.

Average prices on land 1995-2003, 1 000 SEK/ha

Area	1995	1997	1999	2000	2001	2002	2003
The country	10.8	12.8	15.4	16.8	18.4	18.5	19.4
Stockholm	11.2	10.6	12.2	19.8	20.7	21.1	18.7
The Southern part	21.8	28.5	33.3	32.5	38.9	37.2	40.4
The North part	2.3	2.8	3.3	3.3	3.4	3.4	3.6

1.4: Cultural analysis

Question 1.4.1: Skills tradition

Värmland has a long and strong history. The county's cultural tradition has shaped a very strong identity and people in Värmland are proud of and, in many ways, satisfied with the situation in the county. Värmland is an old county with a recorded history reaching back more than 1000 years. It has a strong tradition of cultural activity in literature, songs and storytelling. The landscape is scenic and gives opportunities for recreational activities and tourism, both in summer and winter.

Question 1.4.2: Educational level

The educational level of the population is constantly rising. An increasing proportion of upper secondary school students continue to tertiary education. Karlstad University, launched in 1999, is experiencing rapid growth. There are 11,000 students at Karlstad University. The share of persons with tertiary education varies from 15% to 39% between the municipalities in Värmland. The gender pattern is that women have attained higher education levels than men. 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

Population aged 25-64 by level of education (2005)

County/sex	Population (number)	Primary and lower secondary education (%)	Upper secondary education less than 3 years (%)	Upper secondary education 3 years (%)	Post-secondary education, less than 3 years (%)	Post-secondary education, 3 years or more (%)	Post-graduate education (%)	No information about level of education (%)
Total population	4,795,951	17	30	18	14	19	1,0	1
Women	2,364,976	15	29	17	15	22	0,7	1
Men	2,430,975	19	30	18	13	17	1,3	1
Värmland	140,359	17	35	18	13	15	0,4	1
Women	68,465	15	34	17	15	18	0,2	1
Men	71,894	19	35	20	12	12	0,5	1

1.5: Political climate

Question 1.5.1: Political mainstream

The centre-right alliance won the election (17 September 2006) and Sweden have from 2006 a new government.

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.

Politically there is in Värmland abundant evidence of a will to work together for the region's future development. The small size of the region means that collaborative and consultative bodies are relatively easy to establish. Informal networks are strong.

Värmland has come relatively far in terms of using information technology (IT) in its contacts between governmental authorities and citizens. The development of e-services as well as an increased need to disseminate and access information naturally places significant demands on the existing and growing IT infrastructure. Due to a substantial investment in broadband, Värmland has become an even more attractive region for individuals, businesses, schools, and the public sector.

2: Baseline situation ICT and broadband

2.1: ICT access and use

Question 2.1.1: The ICT-sector

One industrial sector which has increased in Värmland is activities connected with information and communications technologies. A substantial part of this reflects trends in the wider economy, but the university has played and still plays an important role in their development. In the longer term IT has the potential to become one of the basic industries in Värmland. Karlstad is the sixth largest region in Sweden in terms of number of employees in the ICT (Information and Communication Technology) sector. More than 90 ICT companies in Karlstad have established a network organization named Compare. Compare Karlstad (Competence Area) is a world-class industry cluster that provides a shared platform for IT businesses in Karlstad and the County of Värmland. The organisation was formed in January 2000. By mid-2004, Compare boasted 90 member companies, employing about 3500 people in total.

The region's IT cluster consists of approximately 100 companies with a total of some 5000 employees. This ranges from large, international groups, through SMEs, to small family-run businesses. Together they offer a broad range of competence that stretches from products, to usability research and telecom consulting, providing high competence and a broad range of smart solutions for customers. Such a comprehensive concentration of companies offering a wide range of services is clear proof of Karlstad's widely acknowledged credentials as a high competence IT region.

Question 2.1.2: ICT-use by population

The percentage of persons in Sweden who have used a computer at least once a week was 94% in 2005 by age 16-24. The usage is lower for persons aged 55-74 years (64% in 2005). The most common purpose for Internet use is to find information about goods and service (74%) and to send/receive e-mails (70 %).

Proportion of persons aged 16-74 who have used the Internet by age and gender, per cent (First quarter 2005):

Age	Women	Men
16-24	96 %	98 %
25-34	94 %	97 %
35-44	92 %	93%
45-54	84 %	85 %
55-74	48 %	64 %

Question 2.1.3: ICT-use in schools

Access to ICT tools in school is very high. 99 % of teachers have access to computers on the Internet, 98 % have access to e-mail and 93 % have access to CD-ROM/DVD players in computers in school. All head teachers have access to computers, the Internet and e-mail, 97 % also have access to CD-ROM/DVD players in their computer. Amongst pupils, 99 % have access to computers and the Internet, 95 % have e-mail and 84 % have access to CD-ROM/DVD players in school.

Question 2.1.4: ICT-use by enterprises

Share of enterprises with access to Internet by size industry

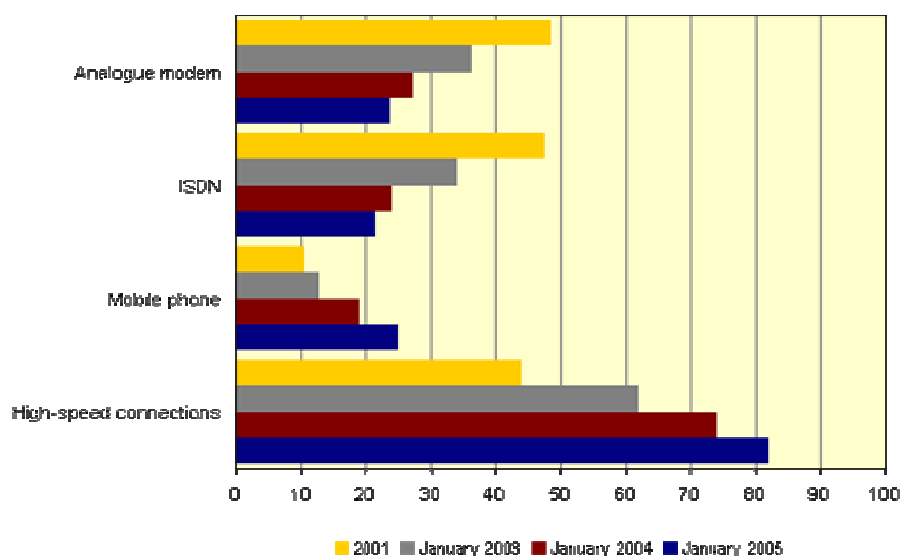
Year 2005, 10 employees or more:

10-19 employees	93 %
20-49 employees	95 %
50-99 employees	100 %
100-199 employees	99 %
200-499 employees	100 %
500 employees or more	100 %

In January 2005, 82% of Swedish enterprises (10 employees or more) had a high speed Internet connection (High speed connections are defined as DSL connections and other fixed connections, such as fibre or radio link)

Share of enterprises with access to different Internet connections

Year 2001, January 2003, January 2004 and January 2005, 10 employees or more



2.2: Broadband access and use

Question 2.2.1: Definition of broadband

There is no officially accepted definition on Broadband, not even in the IT Bill. In official contexts, however, the Government uses the formula "capacity to transmit multimedia services with good technical quality" to denote broadband capacity.

Question 2.2.2: Overview of broadband access providers

After January 2005 the number of Internet service providers, which offer broadband subscriptions in Sweden, have increased. Examples on providers: Telia Sonera (38 % of the market), Bredbandsbolaget (20 %), Com hem (11 %), Glocalnet (6 %), UPC Sverige (5 %), Spray Network (4 %) and others (16 %). They all offer different range of internet services and speeds up to 24 Mb/s. In Värmland the inhabitants can choose between 16 different providers at present time.

Question 2.2.3: Overview of broadband users

1.7 million households have broadband subscriptions in Sweden (2005).

The opportunities for obtaining broadband are continuing to improve. The level of coverage for the copper network, which is the network that reaches most users, now amounts to approximately 93%. PTS (the Swedish National Post and Telecom Agency) estimates that there are in total 2.5 million broadband accesses that are ready to delivery. This means that just more than a half of Sweden's households could obtain broadband immediately.

The growth in the number of households who actually choose to acquire broadband subscriptions has been somewhat greater during 2005 compared with the preceding year. Just more than 1.7 million households currently have broadband subscriptions (~40% of the households in Sweden). This represents an increase of 40% during 2005. Connections with at least 2 Mbps now constitute at least half of all subscriptions, compared with 40% in December 2004. Districts with less than 250 inhabitants have significantly poorer access to networks compared with larger districts.

Question 2.2.4: Available Technologies

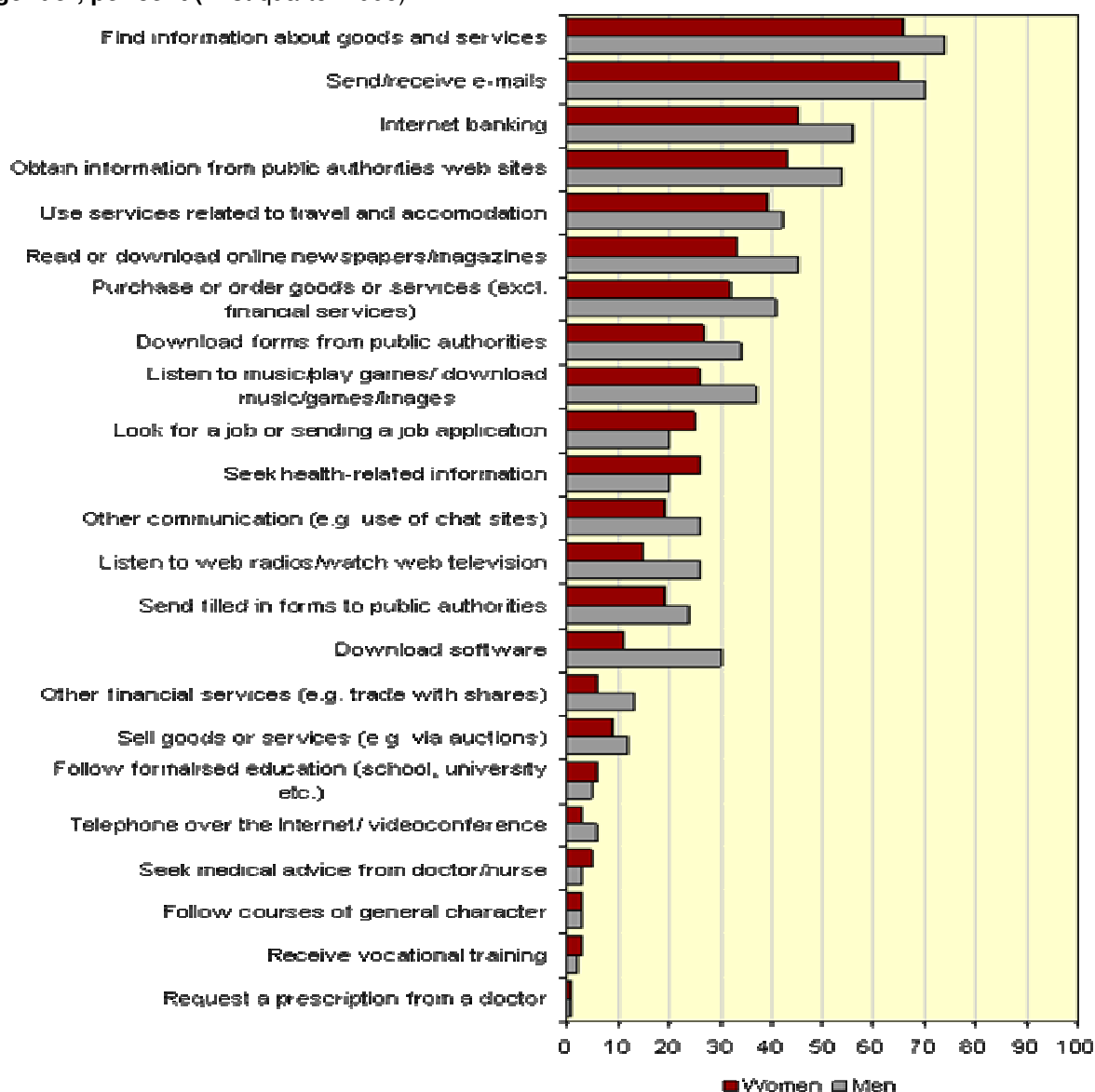
Available Technologies in Sweden are: Copper (xDSL), cable TV, fibre, radio (WiMAX), Satellite, and Power Line Communication. The prices diversify. 90% of the region is covered today (2006), mostly by ADSL.

Question 2.2.5: Applications

By and large, all governmental authorities, municipalities, and County Councils have a website today, with information and e-services accessible to their constituents via the Internet. During two months, August-September of 2005, the websites of the public sector had 2.9 million visitors in the country – this represents 60 per cent of all active Internet users.

The Tax Board’s website offers a wide selection of e-services and the number of user sessions during 2005 increased to 15 million; over 160 million documents were delivered through the website. The most utilised service is the electronic income declaration that was used by just over 2.1 million taxpayers during 2005, more than twice the number of users during 2004. This year (2006) 2.6 million Swedes filed their income declaration electronically.

Proportion of persons aged 16-74 who have used the Internet by purpose of Internet use and gender, per cent (First quarter 2005)



Question 2.2.6: General conditions/Legislation

There are still areas and places in Sweden that do not have access to broadband or have few operators. As these areas are often located in particularly sparsely populated areas, where it is unprofitable to build out the broadband networks, the question arises of whether the build out will occur on a market basis. One problem is that it is currently unclear what is meant by "good access to broadband" Consequently, the Swedish National Post and Telecom Agency (PTS) considers that strategies and concrete goals are required for the future build out of broadband. Further investigation is required to identify goals and the measures that could possibly be applied to satisfy the need for broadband in all parts of Sweden

The goal for IT policy in Sweden is that "Sweden must be a sustainable information society for all". This implies an accessible information society with a modern infrastructure and IT services of public benefit, so as to simplify everyday life and give women and men, young people and old in every part of the country a better quality of life. On 18 June 2003, the Swedish Government appointed an IT Policy Strategy Group. In addition to exercising an advisory role vis à vis the Government, the Group is to play a proactive role in efforts to achieve the IT policy goal of an information society for all. Another central task is to seek in collaboration with other players in the community to maintain Sweden's leading international position at the forefront of IT development.

3: Broadband strategies

Question 3.1: Objectives

The goal for IT policy in Sweden is that "Sweden must be a sustainable information society for all". This implies an accessible information society with a modern infrastructure and IT services of public benefit, so as to simplify everyday life and give women and men, young people and old in every part of the country a better quality of life.

In Värmland the main goals for bringing broadband access forward could be divided into five areas; inter-municipal e-collaboration, e-government, e-education/e-learning, e-solutions for business, and e-health. The municipalities in Värmland have, in recent years, actively worked at taking advantage of the opportunities afforded by broadband technology, and by starting the joint project "IT Värmland" whose goal is to contribute to economic growth, development of business and increase in jobs.

Objective/Vision:

- 100 % broadband coverage in Värmland
- All inhabitants should have access to same e-services for the same price.

Question 3.2: Measures

Visions and Measure programme for e-Services in Värmland:

Inter-Municipal e-Collaboration

Vision (2015): "A joint choice of e-Services for all municipalities in Värmland"

Measures:

- Co-operation on IT based services between all municipalities in the county. Co-operation on joint purchases, joint system administration and resource centres for various shared systems.
- Continue the collaboration in the project IT Värmland.

e-Government

Vision (2015): "Accessibility on citizens' terms"

Measures:

- Work towards making it possible for citizens and businesses in Värmland to obtain clear insight into the handling of cases and to give everyone the same high level of quality as regards to the handling of cases, regardless of conditions and where in the country one may live.
- Strive towards co-operation and making use of the gains in efficiency that cooperation yields.
- Work towards the inhabitants of Värmland to a greater degree using IT and the e-Services on offer in the county.

e-Education/e-Learning

Vision (2015): "Flexible education that meets the individual's interests and needs, and the demands of working life."

Measures:

- Design flexible education in the form of co-ordinated distance education, with the help of broadband and new technology.
- Work towards every individual in Värmland acquiring good IT skills.

e-Solutions for Business

Vision (2015): "Värmland is to be at the forefront of e-Commerce"

Measures:

- Work towards kick-starting active e-Commerce between municipalities, small, medium-sized and large enterprises, and to turn Värmland into a forerunner in development and co-operation in e-Commerce.
- The portal Meetingpoint Wermland, operated by the Wermland Chamber of Commerce, is to be the natural choice for businesses starts with e-Commerce.

e-Health

Vision (2015): "A co-ordinated health portal for the county, where citizens can see his/her own health care information"

Measures:

- Meet the demands of Värmland's citizens on the health sector by developing health care information and e-Services.
- Co-operate in the county to with the assistance of IT as a supporting tool to ease daily work of health care staff in Värmland.