



E-SERVICES IN VÄRMLAND

– A Strategic Study



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1. Summary

E-services in Värmland, a study of strategy, is divided into five sections: inter-municipal e-collaboration, e-government, e-education/e-learning, e-solutions for business, and e-health. Facts that are included have been gathered in conjunction with experts on IT in Värmland.

The primary areas of operation for inter-municipal e-collaboration in Värmland include telephone services, 24 hour-a-day governmental agencies, distance education, electronic commerce, and IT in health care. Municipalities have, in recent years, actively worked toward making the most of opportunities that broadband technology affords, i.e. by starting the cooperative project "IT-Värmland." Joint expansion of broadband capabilities was undertaken by 16 municipalities, and a structure was established that divided the county into four municipal groupings (Northern, Eastern, Western, and Central Värmland). Northern and Eastern Värmland are the regions which have achieved the greatest level of e-cooperation within the municipal groupings in Värmland, but the goal is to increase geographical cooperation in terms of e-services among even more municipalities. The vision in terms of e-cooperation is a joint range of e-services for all Värmland municipalities under "IT-Värmland", with Region Värmland as the leading agency.

Development of e-services as well as an increased need to both accumulate and spread information places increasing demands upon the IT infrastructure. A significant investment has been made in Värmland, where 172 towns and villages, as well as 16 municipalities have connected to a fibre net with maximum bandwidth. As a rule, all public agencies have their own website with information and services for their citizenry via the Internet. During 2005, the most visited website was that of the Swedish Employment Service (Arbetsförmedlingen), seconded only slightly by the websites of the National Tax Board (Skatteverket), the Swedish Road Administration (Vägverket), and the Swedish Social Insurance Administration (Försäkringskassan). The concept of e-government in Värmland pertains to increasing accessibility to governmental authorities and improving services both to companies and individuals. The vision for e-government is defined as "Accessibility on citizens' terms". This means that both the individual citizen and companies in Värmland are to be afforded the possibility of insight into how their errand is being handled, as well as a guarantee of equal quality in terms of service, despite particular conditions or where in the county one is situated.

E-education and E-learning in Värmland is on the threshold of explosive development. This educational form can be used for various types of learning within companies, municipalities, schools, universities and colleges, and by consumers. One example of studying at the college or university level regardless of time and space is "Net University" which works with 35 colleges and universities in Sweden in order to provide more students with the chance to study from home. Another way of studying electronically is via the municipal learning centre that builds upon the notion of flexible and distance learning. "Flexible education which meets the interests of the individual and the demands of vocational life" is Värmland's vision in terms of e-education. This means that all of Värmland is to provide access to flexible education, in the form of coordinated distance education through the means of broadband.

Since 2001, the Värmland Chamber of Commerce has sponsored the project "Meetingpoint Wermland" the primary goal of which is to increase knowledge of e-commerce and stimulate/promote the development of e-commerce in the region. The project has, during recent years, evolved into a practical and functional portal – a digital toolbox filled with various services for electronic invoicing, among other things. The goal is a future Värmland

where independent businesspeople are able to work electronically through standardized and pre-packaged solutions. It is therefore important that such development is purposefully driven forward. Our vision is a Värmland that is at the cutting edge of e-commerce in terms of e-solutions for business. This will require active e-commerce between municipalities and companies in order to see Värmland as a forerunner in Sweden in terms of development and cooperation in e-commerce.

In terms of e-health, several services and projects are conducted on the national level through the Carelink organization, a network for communication in health care. The Värmland Catalogue is a cooperative catalogue project for health care in Värmland that has resulted in a joint electronic catalogue for the 16 municipalities of Värmland and the County Council. The Värmland Catalogue is based upon the national catalogue service, the HSA, which is operated by Carelink on the national level. The vision for health care in Värmland is “a coordinated health portal for the entire county where patients can access their own health care record.” Demands placed on the health care sector by its constituency are to be met through thorough health care information and sought-after e-services. Available IT support is to be user-friendly and simplify daily routines for health care workers.

2. Method

Objective

The strategic study on “e-Services in Värmland” has been carried out owing to the County of Värmland’s participation in the trans-national EU project “Baltic Rural Broadband” in the Interreg IIIB Baltic Sea programme. The County Administrative Board of Värmland co-finances this study together with the European Union and Region Värmland.

The design of the report

The strategic study “e-Services in Värmland” outlines the situation as it is at present and is at the same time forward-looking and visionary with regard to Inter-municipal e-Collaboration, e-Government, e-Education, e-Solutions for business and e-Health. A basic SWOT analysis, summarising examples of strengths, weaknesses, opportunities and threats, has been carried out for each of the above areas. The study will result in a bullet-pointed action programme for e-Services in Värmland. As a result of Torsby Municipality, the Wermland Chamber of Commerce, Region Värmland and the County Administrative Board of Värmland taking part in the Baltic Rural Broadband project, focus will be placed on co-operation and services present in the respective organisations.

Action Plan

The facts contained in this study have been collected with the assistance of IT experts in Värmland in the following fields: Inter-municipal e-Collaboration, e-Government, e-Education, e-Solutions for business and e-Health. A number of experts have been selected for the study’s reference group. The selection of experts has been made in consultation with Peter Thörn, IT strategist at Region Värmland. The reference group is made up of IT director /IT strategists at municipalities in Värmland, the County Administrative Board’s IT director, project leaders at Region Värmland, project leaders at the Wermland Chamber of Commerce and the project leader of IT services at the County Council of Värmland.

1. *Inventory of e-Services*: The strategy study has been produced first and foremost with the help of the Internet and a number of websites.
2. *Comprehensive Interviews*: Comprehensive interviews, focussing on the situation in Värmland today as regards to e-Services on the Internet, have been carried out with IT experts.
3. *Deep Interviews*: A reference group has been appointed, consisted of at least one IT-expert from each area. Deeper interviews have been carried out with the reference group experts on the subject of objectives and visions.
4. *Writing of the report*: The report was written between April and September 2006. (The measure programme has been carried out on the basis of goals and visions for each area.)
5. *Consolidation of the report*: The content of the report have been reviewed by the reference group and by Professor Sune Berger at CERUT (Centre of research and regional development) at Karlstad University.

3. Inter-Municipal e-Collaboration

Taking stock of the present situation

The current situation clearly shows a Värmland on the threshold of great challenges where savings must be made in a number of areas. Population statistics show that the percentage of taxpayers and employed people is diminishing, that the number of elderly is on the rise, and that large numbers of municipal employees will retire in the not so distant future. At the same time, the citizenry will be expecting more service and accessibility in line with the vision of a 24-hour a day governmental authority. Earlier projects focusing the development of e-services in the municipalities have clearly uncovered the need for cooperation. Other factors that impact the success or failure of inter-municipal e-collaboration have also been uncovered. A well-functioning broadband net is one condition for successful cooperation, while other conditions include standardized systems in the municipalities and the need for municipalities to be of comparable size with approximately the same economic resources. In addition, success is helped by the confidence and willingness to take new steps that come from discovering examples of properly functioning inter-municipal e-collaboration in the form of coordinated IT-based services. Positive personal chemistry between the involved partners is also important so that constructive dialogue and a clear willingness to cooperate is demonstrated and clearly outlined in a defined manner.

Many areas of municipal operation show cooperative potential within IT. The greatest areas of cooperative potential in Värmland are GIS (Geographic Information Systems), telephone services, the 24-hour governmental authority, distance education, electronic commerce, and IT in health care. 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. Joint broadband expansion has been ongoing among Värmland's 16 municipalities where expansion has been divided into four groupings (North, East, West, and Central Värmland).

Two municipal groupings "North Värmland" and "East Värmland" have reached furthest in terms of cooperation. In "North Värmland" (Hagfors, Sunne, and Torsby), cooperation is reached by sharing services/applications with one another. The solution has come about by separating the venues of operation for the various applications between the municipalities, in separate databases that in turn can be steered from all three locations. In addition, an agreement has been reached that no fees shall be charged between the three municipalities, but rather that by investing in joint services, the municipalities will split costs evenly. In "East Värmland" (Kristinehamn, Storfors, Karlskoga, Degerfors) cooperation is planned within the areas of salary administration, IT (including telephone services), purchasing, and accounts payable. Coordination has also been carried out for IT operations in Kristinehamn and Storfors, which means that all IT operations (including telephone services) take place via Kristinehamn. This union accounts for economic savings and an increase in quality, particularly for the smaller municipality of Storfors.

Open source in municipal operations is a question discussed by many. An open license model makes it possible to change and develop code and then send it on. There is an interest for open source in Värmland and there is an ongoing project involving four municipalities where cost-effective IT-solutions are under consideration through open source, for increased cooperation in program development. The greatest advantages of open source are found in its high level of safety, since all can review the code, and in its vendor-independence, since municipalities can purchase services from any vendor, in turn implying better service.

SWOT-analysis

A simple SWOT analysis (strengths, weaknesses, opportunities, and threats) within the area of inter-municipal e-collaboration shows that strengths are time saving, cost effectiveness, more operational safety and less vulnerability. Organizational profits surface in the form of increased quality, improved routines and services, and more attractive services due to increased specialization. Finally, better utilization of personnel resources, increased knowledge and experience exchange, as well as the shift in IT personnel from generalists to specialists reduces the need to buy services from external consultants.

Weaknesses in the area include: municipal contracts with various vendors which cannot be rescinded before the contract period has lapsed; weak interest in cooperation from politicians or municipal directors; historic problems in cooperation; resistance to renewal; and fear of job loss/reassignment of various tasks to other personnel. Opportunities in inter-municipal cooperation include: broadband technology can open up more areas of cooperation than ever before, and municipal resources can be used more efficiently. New technology makes mobility and physical independence possible and provides more effective means of communication. Future threats/obstacles to future development of e-cooperation can be economic, legal, and technical obstacles; excessively restrictive demands on security; poor methods of analysis; and difficulties in recruitment. Knowledge of the existing possibilities that exist may also be lacking to the extent that competition among the municipalities comes about and the spirit of cooperation dies. Competition may also arise from without.

Short-term goals

The goal of Värmland's IT experts is to reach cooperation in as many areas as possible according to interviews on the subject of inter-municipal e-cooperation. Short term, cooperation within the various municipal groupings in the county is most important, but the goal is to increase cooperation geographically in terms of certain IT based services. The various parties within "IT Värmland", including representatives from all 16 municipalities,

the Värmland County Council, the Värmland County Administrative Board, and Karlstads University plan on continuing the cooperation that began as early as 2000. Within "IT Värmland" a new cooperative project named "Webgis" is underway, where municipalities throughout the county plan on building a GIS portal/platform for joint information provided through maps, pertaining to physical planning, tourism, schools and health care. In addition, work is underway on IP telephone services (IP = Internet Protocol) for distance learning through "Learning Centres in Värmland". Within "IT Värmland", it has become apparent that future success must be supported by the primary agency, Region Värmland, in making certain that issues that have been agreed upon as critical are promoted through committing personnel to work with these areas.

In terms of the cooperation that was previously discussed among municipal groupings, "North Värmland" is soon ready to launch a municipal level directory that is to unify Hagfors, Sunne, and Torsby. Cooperation in terms of larger systems such as the personnel administration and social welfare systems is desired, and future opportunities to expand the constellation and cooperation to even more municipal members by unifying various applications is being examined. In "East Värmland" the municipal IT departments have begun planning for cooperation within methods development as well as joint usage of specialist functions within IT security, databases, and communications. Other critical areas of cooperation include the coordination of IT education, and joint IT development toward the 24-hour government agency. Today, Kristinehamn and Storfors cooperate through having combined their two IT departments. The goal is to ultimately cooperate among all five municipalities in East Värmland (Storfors, Kristinehamn, Degerfors, Karlskoga and Filipstad) through the operation of a joint IT system.

Vision

In terms of inter-municipal e-collaboration, the vision for Värmland (for 2015) is, according to the IT experts interviewed, a common selection of e-services for all Värmland's municipalities through "IT Värmland" with Region Värmland as the principal. In order to fulfil this vision, an interactive platform of services needs to be developed, whereupon each municipality purchases the complete function/service that is needed, and each municipality shares in the responsibility. All services and functions shall always be accessible for all municipalities in Värmland at the same price. The vision for e-cooperation between Värmland's municipalities covers a number of areas where cooperation can be the most advantageous and provide the greatest effect in terms of savings, joint development and resource/competency use. With *common purchasing*, uniformity is reached, which means that the municipalities become a more attractive counterpart for various vendors, and with *common systems administration*, the costs for licenses, products, and resources are less. The municipalities shall in the future function as a resource centre for various types of common systems, with the aim of concentrating competency in one type of operational system in one municipality. This also means that each respective municipality is responsible for assuring that there will be backup resources to minimize vulnerability during illness, holidays, and even lay-offs, for example.

4. e-Government

Taking stock of the present situation

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. Approximately 172 towns and 16 municipalities have joined together with the County Council to connect with the new fibre net with the greatest bandwidth.

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. Among national authorities, the website of the National Employment Service (www.ams.se) had the most visitors, with 850,000 visits during August-September 2005. A close second was the National Tax Board (www.skatteverket.se), followed by the National Road Administration (www.vagverket.se) and the Social Insurance Administration (www.forsakringskassan.se). 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.

Another popular Värmland website is "Kollplatsen" (www.kollplatsen.com) whose e-services are directed toward the Värmland resident specifically. "Kollplatsen" is a joint venture between Karlstad Bus and Värmland Traffic, the agencies responsible for all bus and rail traffic in Värmland. Kollplatsen.com has close to 2000 visitors per day.

SWOT-analysis

In Värmland, e-government has evolved into the leading concept in the effort to increase access to governmental authorities and improve service to companies and individuals. E-government means a change in authorities' processes, routines, knowledge base and organization, and it implies that there must be a greater degree of cooperation between various authorities. E-government and e-services offer many strengths. For citizens, it means increased access and economic profits. For authorities, it means that the competencies within the public sector can be used more efficiently while the quality of application forms and similar documents increase. E-government eliminates the limits posed by distance, since the major governmental authorities no longer need to be situated in the main cities, since the world can easily be accessed via broadband. One weakness for the authorities is that economic effects are not immediately noticeable, since certain errands must be taken care of on paper during transitional periods. In addition, it can be difficult for employees to accept the changes that e-services cause. The development of e-services creates significant opportunities for growing authorities where IT solutions become entire operational solutions. The introduction of standards also creates conditions for cost-effective e-services. An example of a future threat is poor accountability from the national government in terms of standards, as well as obstacles in legislation that can threaten the development of e-services. Persuading citizens to use the e-services may be difficult since all may not have access to the services, and since many could lack the necessary competency to use the services.

Short-term goals

The Swedish government promotes three keys for the development of e-government in its explanation "On the Road to the 24-hour Governmental Authority" (www.sweden.gov.se). These are Openness, Service, and Efficiency. Openness indicates that the individual or business is to be afforded the opportunity to see how their errand is being handled. Service means that all are to be treated with high quality service and treatment, despite their conditions or where in the country they live. Finally, efficiency stands for the importance that the public agency must place on the benefits that cooperation with others can afford. The new IT proposition (www.sweden.gov.se) suggests measures for developing the benefits of new technology. An example of such includes special measures promoting the participation of functionally disabled persons in the information society. State agencies with their own IT infrastructure shall contribute to IT policy, which, for example, would mean that Swedish Rail and the National Road Administration would contribute to IT development by making available their infrastructure to other purposes. Other suggestions include a developed coordination and preparation of basic functions in terms of electronic signatures, among other things. The government also maintains that all agencies shall handle their incoming and outgoing invoices electronically from 1 July, 2009 and that a joint effort shall be made in terms of all procurement processes with the aim of reaching increased automation in as many steps of the process as possible.

Short-term goals for e-government in Värmland can be seen in the County Administrative Board: the process will soon be simpler for people seeking a driver's license, permission to supervise driver's training, and permission for occupational driving, as well as for those applying for approval of guards or registering changes in information about foundations. The government has given the Country Administrative Boards the task of prioritising four areas for common electronic services on the road to 24 hour government: driver's licenses, guards, foundations, and occupational driving. These four are to be completely accessible to citizens via the Internet (www.lst.se). The County Administrative Board of Värmland will successively introduce some 20 new electronic services during 2006 and 2007, which will mean that it will be possible to fill in, sign, and send in applications, as well as turn in certificates, basic data, and other information via the Internet. Another area that has begun developmental work is NYPS (New Project and Support Errand Handling). The basis for the NYPS project is the need to integrate various administrative systems (Diabas, Stins, Agresso), the possibility of simplifying and making efficient the handling of errands, and the need to improve service to the customer. NYPS plans on being introduced by the County Administrative Board during the spring of 2007 and is expected to effect a thorough change in the processing of regional support.

The national vision for e-government means that all governmental authorities shall cooperate so that the citizen or customer shall only need to have one contact with that authority in order to perform even complicated errands which demand certification or permission from several authorities. Individual citizens and businesses should be able to gather and leave relevant information simply, despite how responsibility for these issues is allocated among several agencies or between state, municipality, and county. The citizen shall also be able to have his errand handled during hours that suit the individual. Naturally, this demands that contacts and services are simple, flexible, and accessible. Coordination between various authorities on both the local and regional level is also necessary.

Vision

"Accessibility on the terms of the constituent" is Värmland's vision for e-government. The vision for Värmland is principally the same as the national vision. The authorities in Värmland strive for standardization and cooperation, just as authorities do in the remainder of Sweden. Therefore strategies and visions must be national. The technology for realizing this vision already exists or is under development. But, in terms of 24-hour government, one must keep in mind that it is integrated with society's changed demands and needs. It is a vision that likely will need constant revision while it is being fulfilled. Värmland's authorities stand before a great challenge since everything from organization, to thinking, to services must undergo change.

Värmland's vision for e-government (for 2015) also contains an increased use of IT and e-services in the county. The aim is therefore an increased number of households connected to the existing broadband network. In order to reach this goal, not only must further expansion of broadband be realized, but so must an increased IT competency and IT usage among Värmland residents in order for the selection of e-services in the future to be easily accessible and fully used by the individual as well as employees in business, municipalities, and authorities.

5. e-Education/e-Learning

Taking stock of the present situation

Internet-based distance education is on the threshold of explosive development. This educational form can be used for many types of learning among companies, schools, universities and colleges, municipalities, and by consumers. One example of university and college education which is independent of time and space and meets via the Internet is the Net University (*Nätuniversitetet*, www.natuniversitetet.se), a joint effort among 35 colleges and universities in Sweden working to create opportunities for many to pursue higher education from home. For the individual who is not willing or able to move, there are now 2700 courses and 100 lengthier programs to choose from on the Net University's website. Many courses are entirely web-based, while others have a varying number of actual meetings per course. Certain educational programs meet at different learning centres throughout the country. In Värmland, Karlstad University offers 148 courses through the Net University at the moment.

Municipal learning centres also build upon the idea of distance education and flexible learning. In Sweden, a total of 230-240 learning centres offer primary adult education, secondary adult education, extension education, qualified vocational education, as well as college and university education. Interest in learning centres has grown in recent years, since more and more individuals are seeking higher education while desiring to study flexibly. Via Region Värmland, a cooperative effort began among the county's municipalities, the County Council, Karlstad University, the County Library, and the community colleges to stimulate cooperation and development of flexible learning in Värmland. One result of the cooperative effort is the project "Learning Centres in Värmland", begun in 2003. The aim of the project is to develop opportunities for flexible learning/distance study in the entire county. A project coordinator works together with committees that deal with various issues, among which are a mapping out of competency needs, development of flexible learning on the secondary educational level, planning of courses in distance pedagogy, etc. A further result of this cooperative effort is the educational portal www.varmland.se/vux, where all of Värmland's

adult education programs are outlined. Learning centres are available in 13 of the 16 municipalities in Värmland, and 11 of these are equipped with television or videoconferencing facilities. The remaining municipalities can conduct e-learning through, for example, Karlstad University.

SWOT-analysis

The greatest strength within e-learning is that the Internet provides the freedom for the individual himself to determine the pace of education, and for the instructors to reach new target audiences. A weakness is that many municipalities are too small and cannot afford to run distance courses from universities and colleges. There are no standards that describe adult education and forums for cooperation are lacking between municipal adult education and Karlstad University. Other weaknesses include the difficulty of projecting educational needs; the choice limiting inter-municipal reimbursement system (which requires one municipality to reimburse another if a resident from the first municipality chooses to take a course arranged in the other); the absence of vocational courses in distance learning; and the lack of strategy and growth perspective in adult education. E-learning provides the opportunity for lifelong learning as well as the chance for many more to educate themselves toward their own desired end. It also provides the possibility of combining work with study and matching course offerings with local needs in the labour market. Finally, a future threat may surface due to the instability of how coordinating adult education takes place, since it takes project form in Värmland. In addition, a negative trend in Värmland's population base can threaten distance education.

Short term goals

Much has transpired in recent years in terms of e-learning. Universities and colleges have with increasing frequency blurred the lines between campus and distance. Society demands ever increasing levels of higher education; further competency development is a requirement in business; individuals want more mobility and choice in order to study when and where they have opportunity so they can combine work, leisure, and family life in an effective manner. Tomorrow's society will require capabilities in information technology for individual and societal growth. If Värmland is to have the possibility of providing the needs and interests of the individual as well as that of the labour market, then it is necessary to form courses of study that are accessible and attractive to both. Thus, distance education and coordination is all the more important.

Vision

The government's educational policy is built partly upon the notion that "each individual shall have the opportunity to learn and develop according to his/her own capabilities despite social, economic, or geographical circumstances," but also upon the aim "of meeting the needs of society and the labour market with educated citizens and a competent labour force." This is the vision for e-learning (for 2015) which holds true even for Värmland. Developmental potential lies in the possibility of connecting education and competency development to the labour market in a more effective manner than that which often takes place today. Education connects to growth issues in that growth also relates to increased competence in the county. It is of great importance that municipalities have a clear strategy and goal for adult education, and that it is based upon the "lifelong learning" perspective. In order to create a competency supply in Värmland that satisfies the needs and desires of the individual as well as the demands of society, it must be easy to find what is sought after. It should be fun, enriching, and inspiring to study in Värmland. The county should have the best in the country in terms of quality, accessibility, and adaptability to the individual and society. Primary education is the

base and must be of highest quality. Adult education must be demand-driven, accessible, and adaptable to needs.

6. e-Solutions for Business

Taking stock of the present situation

In this study, e-solutions for business simply means e-commerce. E-commerce means that computers are used to support activities and information flow connected to commerce. The most common e-service in Värmland today is the e-invoice, and perhaps also by association, the e-purchase and e-marketing.

The Värmland Chamber of Commerce has, since 2001, carried on the project "Meetingpoint Wermland" (www.handelsplatswermland.se) together with Region Värmland, The County Administrative Board, NUTEK, the EU, the Swedish Agency for Public Management, and Sweden's municipalities and County Councils. The main aim of the project is to increase knowledge of e-commerce and stimulate as well as promote e-commerce development in the region. The Chamber of Commerce's involvement in the e-commerce area is built upon the persuasion that this new technology helps make Värmland a better place for business to thrive. In 2003, the project evolved into a practical portal called Meetingpoint Wermland. The portal, in short, is a digital toolbox filled with services for sending and receiving electronic invoices, where companies and municipalities can operate e-commerce. The work invested in Meetingpoint Wermland has been extremely successful and the project has been noted both nationally and internationally for its positive yield. Among other things, Meetingpoint Wermland has been named the best example of e-commerce in Europe. Because Meetingpoint Wermland can offer knowledge, experience, and resources, Värmland's operations save both time and money since e-commerce is more cost-effective even for smaller and medium-sized companies and municipalities who cannot finance or carry out e-commerce projects. In terms of benefits to business, e-invoices save time. In Torsby, the time needed to handle an e-invoice has been calculated at 11 minutes, as compared to handling a regular paper invoice that is calculated at 28 minutes. Since approximately 30,000 invoices a year are handled in the municipality, it is possible to save as much as 8500 hours per year. In pure money, that means a savings of approximately one and a half million kronor per year. Torsby will, in the future, handle all its invoicing through the Meetingpoint Wermland portal. This means that all companies who wish to invoice Torsby must do so with some form of electronic solution. Today, Torsby is electronically receives 16 per cent of all its invoices, from approximately 40 vendors, and the goal is that by the end of 2006, 30 per cent of all incoming invoices will be e-invoices.

SWOT-analysis

When it comes to strengths, weaknesses, future opportunities and threats, strengths that derive from e-solutions are saving time and cost-effectiveness. In addition, better internal control, simpler routines for archiving, and greater flexibility with the help of e-solutions result. Weaknesses can arise because it can be difficult to reach standard solutions since there are so many market forces that wish to earn money on e-invoices for example. It also demands certain competency and changed routines. E-solutions for business provide great possibilities to reorganize one's own operation and modernize the company's way of working. One e-solution can lead to several e-solutions, and e-solutions give the company opportunity to expand. Long range threats to e-solutions can arise from the inability to standardize solutions,

and in turn, a huge jungle of e-commerce solutions can grow forth. A lack of competency may also constitute a threat, just as excessive expenses may also be a threat.

Short term goals

From 1 July 2009, all governmental authorities shall, according to a finance department directive, handle both incoming and outgoing invoices electronically. In a study conducted by the ESV (the Swedish Financial Management Authority) during 2005 on the benefits and solutions available through e-invoicing, it has been shown that all authorities, even those that are small, benefit from e-invoicing. Calculations show that savings to the state are 4 billion kronor over a five year period (www.esv.se). Through wide range introduction of e-invoicing the state can also promote the introduction of e-invoicing throughout the balance of society. The ESV is currently preparing the introduction of e-invoicing throughout the government by establishing Svefakturan (Swe-invoice) as the government's standard for e-invoicing. A uniform standard makes it cost-effective and easier for businesses to adapt their e-invoicing. In order to enjoy e-commerce success in Värmland, businesses must dare to direct their own purchasing and force standardized solutions from business systems vendors.

The Värmland Chamber of Commerce will continue developing Meetingpoint Wermland and working toward finding wide range user solutions so that as many vendors as possible can use the Meetingpoint Wermland portal despite their volume of invoices, their business system, or the size of their company. It is hoped that Värmland will be a forerunner in Sweden in terms of development and cooperation within e-commerce, and that, in the future, emphasis will be placed on operative project management, allowing the actors involved to bear the costs of technical investment to a greater extent. The Chamber of Commerce will, in the future, act as the intermediary for effective and flexible e-commerce for all Värmland's trade and industry. By December 2007, it is hoped that 350 business relationships between senders and receivers of e-invoices via the Chamber's portal will exist.

Vision

In the future, Värmland shall be a region where every individual businessperson has the option of working electronically through standardized and ready-made solutions. It is important that this type of development is purposefully driven forward and that a particular entity actively works to stimulate, promote, and influence e-commerce in the region. Värmland's Chamber of Commerce seeks to make "the Meetingpoint Wermland portal" the natural choice when a business or a municipality wants to start electronic commerce; that it will be the regional hub for e-commerce. Positive examples and good effects make it possible to involve more businesses and there are great gains to be made from coordination, both for Värmland businesses and for businesses outside the county. The concept can even transfer to other actors, both national and international, with great advantage. The vision for e-solutions in business (for 2015) is that Värmland and its business community should be internationally competitive in the future. Värmland is to be at the cutting edge of e-commerce.

7. e-Health

Taking stock of the present situation

All information that deals with health care in Värmland is available on the County Council website (www.liv.se). News information and usable links to other websites in the area are also available there. Web services available on today's website, for example *request a family*

doctor, request an appointment, and cancel an appointment are primarily directed at providing the customer/patient better service. They also mean time savings for health care personnel. There is a tremendous deal of pressure from both patients and personnel who wish to have more e-services. Technically, there are no major problems in application. The most difficult issue is getting the e-service to function in various settings: not everyone sees the benefit of the web and routines for e-services are lacking.

When it comes to the development of health care information, many services and projects are organized at the national level through the Carelink organization (www.carelink.se) -- a network for communication in health care whose foremost task is realizing the potential benefits of IT in health care from a national perspective. Carelink was founded in 2000 by the County Council Association, the Swedish Municipalities Association, the Private Health Care Employers Association and the National Pharmacy Corporation (which maintains the sole right in Sweden to sell pharmaceutical products). Carelink manages and administrates Sjunet, health care's communication net and the network to which all Swedish County Councils and municipalities are connected. Health care has a major need for information exchange and communication, regardless of the organization involved and the boundaries of county and municipal lines. All information from County Councils, municipalities and private health care providers can be run through Sjunet, including information regarding schools, properties, traffic, etc. All County Councils, a number of municipalities, a number of private health care providers, the National Pharmacy Corporation as well as the National Tax Board and various vendors are connected to Sjunet today.

In order to communicate electronically, tools are needed for finding various people, roles and positions, as well as various systems. The Värmland catalogue is a joint catalogue project for health care in Värmland that began in 2002 and completed its task in February 2005. The project aimed at a common electronic catalogue for Värmland's 16 municipalities and the County Council. The Värmland catalogue was based upon the national HSA catalogue service that Carelink operates on a national level. The purpose of the project is to coordinate health care planning and to communicate with the help of IT. Reliable, current, correct, and relevant information is available in the Värmland catalogue about health care organizations, personnel, and their various roles. Information is centrally and securely housed in a database, which saves health care personnel time-consuming telephoning and faxing to reach accurate information and the proper person involved. Since 2005, all municipalities are included in the Värmland catalogue. The Värmland catalogue now plans on supplementation with *Secure E-mail* in hopes of sending secure emails between health care providers connected to Sjunet, despite email system vendor. There are presently five municipalities in Värmland (Sunne, Torsby, Säffle, Kristinehamn, and Forshaga) that partake in the "Secure Email" project. In Värmland, a new system for coordinated health care has been purchased. Meddix is the message handling system for patient delivery between the County Council and municipalities, which now will begin to be used fully through the county. The possibility of integrating Meddix with internal operational systems and catalogues, like the Värmland catalogue, as well as connecting to national population registers exists.

E-communication also makes fast and effective communication between health care providers and pharmacies possible. This is a win-win situation for society at large, health care providers, customers, and pharmacies. Today, there are four e-communication possibilities for health care providers: *e-requisition*, *e-prescription*, *e-order*, and *e-dose*. The *e-requisition* service comprises ordering via www.apoteket.se, information, telephone advisement, and delivery to the recipient on a particular delivery date. *E-prescription* facilitates a paperless process for the

customer. An e-prescription is sent electronically to the pharmacy of the customer's choice. All Swedish pharmacies today have the capacity to receive prescriptions and requisitions electronically, but the level of use varies greatly, depending upon how the various County Councils prioritise this issue. Through the web application *e-order* (so-called WebbAbest) it is simple and easy to order medication for a health care division so that what is available in the pharmacy's warehouse and what it costs is clearly displayed. *E-dose* is a web application that facilitates two way communication between health care and pharmacy. Rather than prescriptions, dosage prescriptions where the patient's total prescription package is used, providing a complete overview of the patient's medication profile. The pharmacy also provides a number of e-services for private individuals. As a private individual, it is possible to *pick up prescriptions* and *buy prescription-free medications* and other pharmaceutical products through the website (www.apoteket.se). It is also possible to obtain a compilation of all withdrawals made by prescription via a *medication register*.

SWOT- analysis

Broadband in health care together with effective IT support provides health care personnel more time for actual health care when information needs only to be registered in one place. This allows for improved service to the patient/customer. Another strength within the area of e-health is that experts can be consulted via distance. In Värmland, all municipalities, the County Council, and private health care providers are members of Carelink and Sjunet; that makes cooperation easier. The lack of common strategies for e-health in Värmland, IT's dependence upon management and interest from politicians, and the impact of personal chemistry and personal interest upon e-services can all be seen as weaknesses. Another weakness is that training and informing personnel is time-consuming. Broadband makes increased service and coordinated health care planning possible for patients/citizens. Through cooperation and joint budgeting, much can be done to make health care in Värmland more effective. Future threats to e-health can originate in the huge privacy and security demands placed on health care. These restrictions may limit development. Joint IT support requires major investments and IT solutions are difficult to create when needs are so varied.

Short term goals

The government and the Swedish Association of Local Authorities and Regions have agreed, during 2005, to establish a cooperative effort to support IT development within the health care sector. The "national management group for IT in health care" includes representatives from the Ministry of Health and Social Affairs, the Swedish Association of Local Authorities and Regions, The National Board of Health and Welfare, the Medical Products Agency, the National Pharmacy Corporation, and Carelink, and has jointly prepared and agreed upon fundamental principles for national cooperation in the IT area in order to support the continued development and renewal of health care in Sweden. This work has concluded in a national IT strategy for health care that is intended to function as a support to local and regional efforts and to lay the foundation for more in-depth cooperation. In Värmland, relatively good cooperation between the County Council and municipalities exists, and cooperation has proven to be fruitful very early on. The fact that all Värmland's municipalities and County Council are members of Carelink and Sjunet is unique. Tremendous potential for cooperation exists here, through, for example, joint connection that would mean great savings for all involved.

In order to activate cooperation between the County Council and municipalities in Värmland, it is important that politicians and leadership groups gain a vision for what e-health can mean, and begin to plan and prioritize. Politicians need to clearly take responsibility and participate

in joint IT strategies at both the local and regional level. Since population mobility increases in connection with educational pursuits, job change, and varying summer vs. winter residences, it is even more pressing to establish, with developed IT support, that health care can function without interruption even when people move or live in more than one place. Since freedom of choice in health care was introduced in 2003, the patient's opportunity and right to choose care in an alternative location has improved. The newly introduced guarantee of health care may even increase mobility within health care. It is important to note that Värmland's citizens will, in the future, place the same demands on the health care sector that they place on other service industries, and that they will use the Internet, to an even greater extent, to increase their knowledge of health issues, illnesses, medication, and self-treatment.

Vision

The vision for e-health in Värmland (for 2015) is a coordinated health portal for the entire county, regardless of principal agency, where citizens can reach their own personal site and gain access to their own health care record. Via this Värmland health portal, the patient is to be able to communicate with all district and specialist health care facilities; make appointments for telephone consultation and in-person visits; re-book appointments; and renew prescriptions for medication and other medical aids by logging in. The IT support that exists is to be user friendly and is to simplify daily routines for health care personnel. It is important that cooperation among Värmland's municipalities, County Council, and private health care providers functions so that universal access to health care information is available. A doctor should be able to access information about patient progress after treatment, despite when and where this information is registered. And certified personnel should be able to access information about what doctors have done. New information technologies are effective tools for both citizens and personnel in future health care systems. But the vision for how health care should function in the future can only be realized if IT use is viewed in terms of an operational perspective where citizen needs for secure, effective, and easily accessible care are the focus.

8. Visions and Measure programme for e-Services in Värmland

Inter-Municipal e-Collaboration

Vision: *"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: *"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: *”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: *”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: *”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.

