

E-services in Åboland

- a strategy

BACKGROUND

Finland has 19 regions, one of which is Southwest of Finland, with its 5 regions for its 56 municipalities. The Turku Archipelago is the Finnish part of the Scandinavian Islands. It is called Åboland in Swedish and consists of 20 000 islands and 22 700 bilingual inhabitants.

Region Åboland r.f., the regional development agency for the eight rural archipelago municipalities of south-west Finland, is responsible for developing and implementing the local broadband strategy. This is done through ArchipelagoNet Ltd, a wholly owned subsidiary. Åboland is a hotbed of technical development and innovation, featuring the first wireless Wimax broadband network in Finland and MEBB, the citizens' archipelago intranet.

In Åboland each municipality and co-municipality has its' own local net (= local user system) with varying experience, number of computers and need of support.

The development is going towards a digitalized Internet and local net. As for the municipalities of Åboland there is especially a big economical interest in VOIP (Voice Over Internet Protocol and telephone connection within the own computer network). The video communication has a huge potential also in both healthcare and distance learning.

The vision is that all the municipalities in the long term will use the same software. Horizontally each administration should build up strategies for common software.

STOCKTAKING – PRESENT SITUATION

Rural areas of the coastal regions of the Baltic Sea offer abundant but scattered service for inhabitants as well as visitors. The service is concentrated in small towns while the countryside generally suffer with insufficient range of service and, in connection with this, poor communications. The latter is an especially big problem on islands and in the archipelago areas. The pattern of public communication serves small towns and other inhabited centres quite well, but always in the direction of bigger towns on the mainland. However, the communication possibilities in rural areas and between small service concentrations could be significantly improved with rather small efforts. Improved public communications offer great opportunities for combining different means of transportation into trails and routes. There are already several (mainly touristic) examples on how trails and routes improve the conditions in form of better service accessibility for inhabitants, visitors and thereby business (/service sector) in general in rural and isolated areas. From the customers point of view, service accessibility also means easy to book and buy.

Many efforts have been made to improve “easiness” of booking using information technology e.g. by using database techniques through web-based booking programs. Many of these investments have been fairly to very successful, even though the geographical region covered often is on a local or regional level. Many of these booking systems are fairly easy to connect with each other, also in a way allowing true cooperation between companies without a total merging of either databases or companies, e.g. www.saaristo.org and www.blanka.fi

The growth of e-services has increased in Åboland and everybody has realized that the need of giving and receiving information through the web is important for the development in the region.

Today the municipalities in the region of Åboland have their own web sites:

www.pargas.fi

www.kimito.fi

www.dragsfjard.fi

www.vastanfjard.fi

www.nagu.fi

www.korpo.fi

www.houtskar.fi

www.inio.fi

The inhabitants of the municipalities have good possibilities to seek for information and take part of what Internet offers. In most of the homes there is a PC but in order for everyone to take part of the modern information technology the municipalities and private companies offers net spots (public computers) for free all around in the archipelago. The net spots are for example in every library, guest harbor and tourist information in the archipelago.

During the summertime the need of reading e-mails and seeking for information on available services in the archipelago is big.

Broadband and broadband services

Fast broadband connections have made it possible to develop the technology of videoconference, which is increasingly getting more significant for the teaching in our small schools and for shorter net meetings. The distances are long and the ferry-service to the outer archipelago is not very dense.

The present situation in Åboland is fairly good for basic Internet connectivity. Basic Internet connectivity is available in the whole region through fixed and GSM networks. Accesses to broadband connectivity have improved significantly in recent years due to investments in wireless Wimax broadband networks and long reach ADSL. Near universal availability is provided on main islands and within 20 km of main islands in western Åboland. Outlying and low population areas are still underserved.

The following key projects have been co-ordinated to develop access to broadband and broadband services:

ArchipelagoNet – A joint public-private effort to build a regional fiber optic network covering all eight municipalities. New applications are developed at 1 Gigabit per second for digital x-ray, voice over IP and video conferencing.

First wireless Wimax broadband network in Finland – ArchipelagoNet was the first Internet Service Provider to bring wireless broadband networks to rural and remote areas.

MEBB –development and facilitation of a local eCommunity through a citizens' intranet

Western Finland Regional Broadband Strategy – ArchipelagoNet, together with other local and regional stakeholders, defined a comprehensive broadband strategy for the whole Western Finland region. The regional broadband strategy was co-ordinated with the national broadband strategy aiming at developing Finland as a leading country in broadband and broadband services. The regional broadband strategy works as a guideline for local businesses and municipalities when striving to improve broadband infrastructure and reach 100% broadband availability.

Baltic Rural Broadband and Collaboration @ Rural– brings together the EU countries for best practice, knowledge transfer and development of next generation broadband access technologies for rural and remote areas

TalousNet – an eBusiness portal developed for local SMEs and public/private sector co-operation. Provides tools to automate everyday business administration communicate and share knowledge, bookkeeping, eBilling, payroll, collections and e-file government forms.

eLearning

MeBBen has been working with the ICT development in the archipelago since the beginning of 2002. The purpose of our work has been to increase IT skills amongst the inhabitants and also support them. We work in the whole region, from the smallest municipality Iniö with about 250 inhabitants to the biggest archipelago town Pargas with its 12 000 inhabitants.

The distances between the municipalities are long and sometimes you have to take the ferry to get from one place to another. In wintertime it can be quite difficult to travel in the archipelago due to the weather.

Most municipalities have inhabitants divided on several islands. This means, for example, that when young pupils start school they have to go by bus, boat or ferry to the nearest school. The travel time can be from 15 minutes to 2 hours.

Some of the pupils must stay away from home the whole week; they leave on Sunday and return on Friday evening. Sometimes in winter they can't go to school because of the bad weather.

There are schools for both basic education (29 schools); primary and lower secondary education (forms 1-9), and secondary education; general upper secondary (3 schools) and vocational upper secondary (4 schools) in our region.

Basic education and General upper secondary schools/municipality:

Municipality	Primary school (forms 1-6)	Lower secondary school (forms 7-9)	Basic education (forms 1-9)	General upper secondary school (age 16-19)
Iniö			1	
Houtskär	1			
Korpo	1		2	
Nagu	1		1	
Pargas	8	2		2
Kimito	3	1	1	1
Dragsfjärd	5	1		
Västanfjärd	1			
Sum	20	4	5	3

Vocational upper secondary schools:

Åbolands Yrkesinstitut, Pargas (www.abolandsyrkesinstitut.fi)

Åbolands Folkhögskola Språk- och turistinstitut, Pargas (www.folkis.fi)

Houtskärs kyrkliga folkhögskola, Houtskär (www.hfk.fi)

Yrkesinstitut Sydväst, Kimito (www.yi.sydvast.fi)

Every school has computers and even access to the internet. But unfortunately the computers are in many cases old and there is also not enough computers to satisfy the need of them. Usually computers, about 15-20, are placed in a different IT/computer classroom and teachers book/reserve the room if they want to use the computers in their education. Teachers in general find this very good, but they would also appreciate to have computers in their classroom. In this case they could easier check something on the Internet, for example. One suggestion to solve this problem is to have a stack of laptops available for the teachers.

The Board of Education in Finland demands in their base for the curriculum that

computer use in schools has to be integrated in education on every level. To achieve this, teachers have been offered ICT further education and schools possibilities to obtain computers for educational use. Recommendations are 10 pupils/computer in forms 1-6 and 8 pupils/computer in forms 7-9. In secondary even less.

All teachers should have access to a work-computer or at least share a computer with not higher than 2-3 teachers. For example, in one school there are about 30 teachers but only 2 computers! In this case it is not easy for teachers to either prepare or create tasks for the pupils, it is not easy for them to use ICT in their work during their work hours. It is easier to work in the traditional way. Most of the teachers, which use computers, prepare their week /lessons at home on their own computer. It's a long process to establish ICT for educational use and the need for support is therefore of great importance.

The technology environment of today's schools should match the tools and approaches of the work and civic life that pupils will encounter after graduation. This will ensure that schools stay relevant to today's pupils, as well as equip them for success in life after school.

The lack of ICT knowledge among teachers is evident and depending on the teachers and especially the principals interest in modern technique ICT usage in school varies a lot. There is no statistic that shows how much ICT is used in school in daily education, but every school should have their own ICT strategy, that they should follow. Unfortunately many schools don't emphasise enough the importance of IT usage in schools and perhaps don't follow the strategy.

The students of today find ICT and computers in general very easy to use. They use computers all the time; they chat, play games, surf on the Internet and send e-mails. So for them the computer isn't something new or special. Often the students know more about the computer than the teacher and this frightens some of the teachers. They don't want to do ICT projects if they aren't more skilled than the student.

Joint inspection of construction

Since the second half of 2006 the municipalities of Kimito, Västansfjärd and Dragsfjärd use in their building sector joint soft wares:

- Facta - a register-and permission system and
- Arc View - a map system

In Dragsfjärd there are two overall partial plans on the Internet, one for the east archipelago in the Image Mapper format and one for the west archipelago in the MapLocus system. These two plans will be a define system because of the fact that this is WM-datas Internet version of ArcView.

Today there is a common server for the technical sector, Windows 2003, with Oracle database for the 3 municipalities on the Kimito island in the civil service department of Dalsbruk.

The system works with different codes. This due to the fact the municipalities are independent and have different regulations of local government administration, which results in decisions made independently (concerning policy-making authority and civil

servants). The decisions and the input in the system are made separately for each municipality but they can easily be combined in case of a possible merger of the municipalities.

The system would be suitable also for Nagu-Korpo-Houtskär-Iniö. Nagu and Korpo already have WM-data as their software supplier for their DL-systems together with Map Info Karta, which is functioning with Facta as well.

According to a joint decision the Dragsfjärd system will be made to a working system and subsequently the system will be copied and adjusted to the other municipalities.

The Facta – system contains of: a record of inhabitants, a register of certificate of registration, register of land (ground), and register of constructions. These are brought up to date once a year.

Advantages:

- Based on Windows, used through the net – available for everyone
- Permission, building permit, exceptional permission, environmental permission etcetera can be granted anywhere as long as there is Internet connection
- Common office staff
- During the vacation deputizing for somebody is easy municipalities in between
- Health centre get their data on the population through the system
- The map can be combined with for example the system of school transport
- The leaders can immediately obtain a clear insight in everything if they so wish

The Arv View map contains of: buildings, building permits, groundwater territories, overall plans of buildings, ground regulations, nature territories, boundaries, numbers of boundary-marks, elevation graphs. Different tools, a system of co-ordinates etcetera, which makes the information possible to work with.

Advantages:

- Available on the net through the home sites of every municipality
- Anyone can follow up what is being built, how the buildings are prepared, measure distances
- Immediate net connection to the server on VM-data.
- One person that is responsible for computing in all three municipalities.

eHealth

Finland has 19 regions, one of which is Southwest of Finland, with its 5 regions for its 56 municipalities. Region Åboland is one of these regions, consisting of 8 municipalities with a population of 23.000 residents.

There are 5 university hospitals in Finland with one of them, the University Hospital of Turku, residing in Southwest Finland. The Hospital District of Southwest Finland is a federation of 56 municipalities. Within the hospital district, there are 26 municipal health centres and a population of 450 000 residents.

The Hospital District offers specialized health care services at the Turku University Hospital (TYKS) and four regional hospitals. These hospitals can accommodate a total of 1 500 patients. The regional hospitals are Salo Regional Hospital, Loimaa Regional Hospital, Vakka-Suomi Hospital and Turunmaa (Åboland) Hospital. Each regional hospital has a department of medicine and of surgery.

In Salo and Pargas there are psychiatric hospitals with a combined capacity of 160 beds.

The Turku University Hospital is responsible for highly specialized (for example cardiac surgery, neurosurgery and radiotherapy) health care services for regions as distant as the Satakunta province, the Åland Islands and even farther.

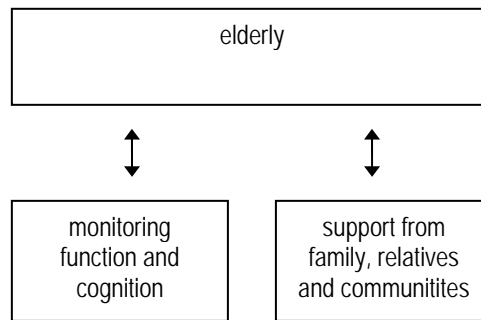
eHealth focusing on elderly care in Region Åboland

Regional strategies for rural eHealth in Finland covers the whole range from home and elderly care, through primary care for the entire regional population all the way to specialist care as provided by nearby regional and university hospitals. In the region of Åboland health care centre functions with primary care physicians in every municipality. Concerning specialist care, the western area of Åboland (Pargas, Nagu, Korpo, Houtskär and Iniö) uses specialist care as provided mainly by the University Hospital of Turku and the Åboland Regional Hospital. The eastern part of Åboland (Kimito, Dragsfjärd and Västanfjärd) uses the University Hospital of Turku and Regional Hospital of Salo. Thus there is no broad coordination of specialist care for Region Åboland. Primary care is organised by a number of regular health care centres in turn providing health care centre functions for smaller municipalities. As a result, eHealth within primary care is yet to be defined and consists today mostly of sporadic telemedicine applications and experiments.

Home and elderly care with an eHealth perspective is under strong development. The structure and organisation of residential homes in region Åboland, and the coherence of respective care and nursing processes within these residential home and elderly care centres, provides excellent foundations for eHealth developments within elderly care in the region.

Present state of eHealth and elderly care

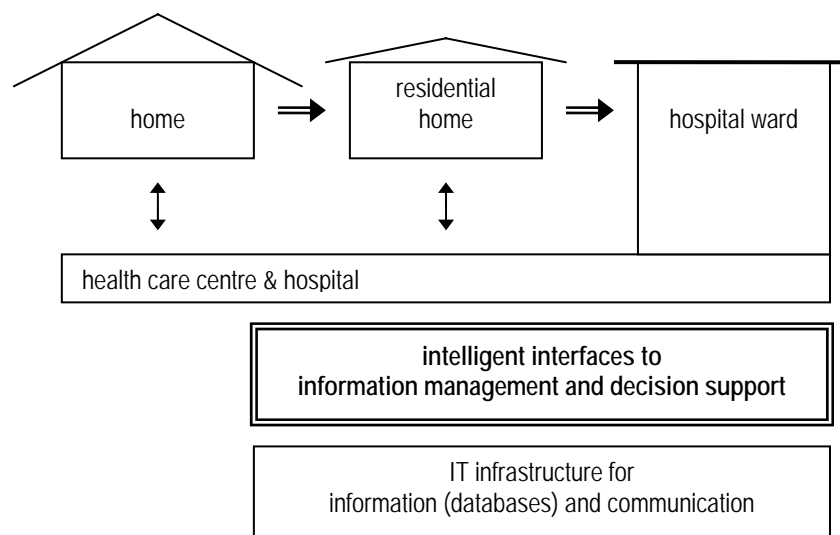
The broadband infrastructure in Region Åboland enables a wide range of telecommunication functionality and applications within elderly care. Virtual conferencing and consultations have been tested during 2006 and teleconferencing solutions are presently being installed for the entire region. Intercommunication involves both care and nursing professionals as well as patients and their relatives.



Home care databases for screening and information assessment purposes have been in use since 2005. These information systems presently cover screening for activities of daily living and cognitive disorders. Further developments are on-going and information e.g. covering depression, preventive home care as well as dementia diagnosis and intervention will be introduced as next steps. Statistical summaries and information assessment on functional disabilities turns out very useful in connection to decision making concerning care and nursing resource management.

“Assisted living in Åboland” – The Vision

The nature and severity of cognitive and functional decline determines treatments as well as nursing and nursing requirements to be fulfilled with respect to patients being in their home environments, in residential homes, or in hospital wards.



The factors determining the length of stay in home care can be grouped into four different areas, namely, *related factor*, *psychological related factors*, *social factors*, and *existential and cultural factors*. Diagnostic processes are followed by interventions addressing dysfunction in organic, psychological/behavioral, social and existential/cultural areas. Interventions include surgical, medical and pharmacological interventions, as well as rehabilitation.

Organic related factors include the type of disorder or disability, e.g. the extent of the organic lesion in the brain. Concerning aspects of care in homes, these organic lesions are important for the levels of compensation involving functional decline, and the levels of active intervention. Psychological related factors include e.g. possibilities for individuals to cope with daily situations, i.e. related to tolerances involving staying alone at home when there are disabilities. Social factors include e.g. the family situation, their willingness and possibility to provide support. It also includes to possibilities and willingness for the community to provide services in individuals homes. Social factors have a number of levels; the family, the local community, the municipally, the regional, national and international levels. Their need of information is obviously different and temporal aspects range from daily management to long-term planning. Existential and cultural factors include moral, ethical and cultural factors in relation to care for disorders in homes.

This means potentially that factors within all areas can be determinants for the length of stay at home. Information on these factors may therefore be crucial. Interventions in these areas may also potentially be beneficial to influences concerning length of stay at home. However, in order to determine, intervene and provide follow-up, information in all areas are of value.

SWOT-analysis

<i>Strengths</i>	<i>Weaknesses</i>
Existing core network Wireless Wimax broadband access network Local municipal ownership Innovative eServices, e.g. MEBB and Blanka	Lack of redundancy Wimax network does not cover all areas Different priorities in municipalities Low private sector participation
<i>Opportunities</i>	<i>Threats</i>
Add new municipalities to network via redundant fiber ring Increase utility and availability of wireless broadband through roaming, partnerships and new build outs Uniting broadband strategy for universal service Better eBusiness tools for SMEs	Network downtime during transition to redundant fiber rings Insufficient access to funding/capital and/or insufficient cash flow for maintenance from small population base Lack of follow through or resources in municipalities Lack of resources to support all potential private sector participants

SHORT TERM GOALS

- Improve redundancy of core network through new north fiber ring
- Retire old ATM technology on remaining links and upgrade to fault tolerant carrier grade gigabit Ethernet
- Transition wireless Wimax network to new radio frequency to improve capacity and coverage
- Partner with other local Wimax networks to enable roaming and improve coverage
- Pilot new broadband services such as digital X-ray, VoIP, multiparty video conferencing and IPTV
- Enable short term visitors better access to broadband service in the archipelago

In the municipalities of Åboland synergy effects can be attained by software-, database-, e-mail- and web servers, network calendar and so on. The goal is to achieve both advantages and economical savings in terms of more effective and dependable systems, lower license fees, better compatibility, lower educational costs as well as a more mobile staff and distribution of work in the municipalities of the region.

VISION

The guiding vision for Åboland is universal broadband access to all inhabitants, businesses and visitors in the region regardless of where they work live and travel in the region. Broadband access for everyone everywhere is the motto. Broadband access and access to broadband services is not a luxury, but a necessity. Broadband access is the great enabler. We wish to enable people to work and live in the place of their choosing, businesses to develop, leverage and effective their processes using broadband and join and merge municipalities and their ICT solutions via fiber optic networks. Broadband access will be adapted to the needs and requirements of the users until broadband access becomes ubiquitous and fast enough to support any and all applications that can be tough of.

SUMMARY

Åboland consists of eight municipalities (Dragsfjärd, Houtskär, Iniö, Kimito, Korpo, Nagu, Pargas and Västanaferd). All of the municipalities are bilingual with Swedish as the majority language. Typical of the region is that it is sparsely populated and that the region is relatively impassable due to the scattered geographic in the archipelago. The delicate nature in the archipelago is unique in a global perspective.

At the moment is the broadband supply in Åboland is satisfying. During the last six years Archipelago Networks Ltd (in the beginning development project SkärgårdsNet (ArchipelagoNet) have developed accessible broadband solutions in the whole region. The optical fibre network is now connecting all the municipalities in the region and

serves mostly the needs of the municipalities. The wireless network has during the last few years also been built up to serve sparsely populated areas and the populated islands.

The broadband supply ought to be improved additionally both by continuing building of the optical fibre network and by investing in the wireless network.

Directing efforts on the content and the development of interactive services are at high priority. You should strive to increase the amount of users of e-services. Interactive services ought to be developed taking into consideration inhabitants, holiday inhabitants, tourists and the industry. The services should be developed satisfying the needs and especially for those inhabitants living in the outer archipelago where the physical distances to the centre is far off. A pilot project is started up where companies in the region through cooperation are offering booking services of restaurants and hotels. Different kind of mobile services should also be developed and tested.

When developing interactive services and electronic forms you ought to aspire a safe identifier of the users using a so-called bank identifying service that is common for all interactive services needing a safe identification.

Through ICT - solutions the supply of sites for building, apartments and spaces for businesses could be accessible. It is of great importance to improve and use land registry and map services that is brought together and can be used for different causes.

The co-operation between the private and public sector ought to be enhanced. For instance e-invoicing, counting wages and other similar support services are in need of a change.

The use of ICT in schools should be backed up so that both young people and teachers can take advantage of the possibilities of web teaching. Web courses can be developed through collaboration schools in between. Measures need to be taken in order to develop and improve the computer support in schools.