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**The Role of Information Technology
in Mediating External Information to
the Rural Micro Enterprises**
– National Literature Review

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Rural Business Information Exchange System (RuBIES) Project

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Foreword

This literature review is a part of the research carried out in RuBIES (Rural Business Information Exchange System) project in 2004–2005. The aim of the transnational project is to provide assistance and support to rural businesses to improve their access to relevant business information and thereby improve business efficiency and decision-making. The project covers four Northern European countries (Finland, Sweden, Iceland and Scotland).

The Finnish literature review presents an extensive overview of the state-of-the-art concerning the use of ICT in rural small and medium sized enterprises (SMEs). In the literature review there is a short description of the rural SME profile in Finland, overview of the current situation concerning the knowledge and use of ICT and e-expert services, and in addition it gives a short overview of policy support and steering enhancing the use of ICT in the Finnish SMEs. The literature review also lists the main e-expert services offered to rural SMEs, especially to nature-based entrepreneurs (NBEs) in Finland.

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Summary

Approximately 86 % of all the companies in Finland employ less than 4 people. Percentage can be estimated to be even higher in rural and especially in remote rural areas. Therefore it can be said that most of the rural small and medium sized enterprises (SMEs), especially nature-based entrepreneurs (NBEs) can be referred to micro enterprises. There were 79 800 active farms and 64 600 small rural enterprises in 2000. That amount equals 29 % of all small rural enterprises in Finland. The number of farms is estimated to decrease radically and therefore there is a clear need for new means of livelihood and small businesses in rural areas. Characteristic for Finnish rural SMEs is also that their business is not often based on expansive business strategies. (Rantamäki-Lahtinen 2000, Statistical yearbook of Finland 2003, Maaseutupoliittinen kokonaisuohjelma 2004.)

Enhancing entrepreneurship, both in urban and rural areas, is one of the most important sectors in national politics in Finland. Both national and EU-programmes strive for amelioration of operational environment of SMEs. As a one major part of the development measures is promotion of the use the ICT in SMEs.

The know-how in ICT technology production is on a very high level in Finland. The reason for the success has been the knowledge of effective producing. Also the ICT infrastructure is relatively good, although it is not divided equally between rural and urban areas. According to Koivumäki and Soronen's research in 2004, 28 % of households in urban areas had an broadband connection, when in the rural areas the same figure was only 8 % (Koivumäki and Soronen 2004).

Despite the relatively good infrastructure, in using the possibilities of ICT and ICT services, Finland is only on the average level in comparison with other countries. When studying the private Internet users more in detail, in 2003 there were 221 Internet connections per 1 000 inhabitants. 54,6 % of total population have used Internet and 44,6 % from weekly basis. In summer 2002 approx. 55 % of Finnish households had at least one computer at home. Also at the same time over 80 % of population aged 15–74 had a mobile phone in their own use. (Statistical yearbook of Finland 2003, Nurmela, Parjo and Ylitalo 2003).

In general, over 90 % of all SMEs used Internet in 2003, even though it can be estimated that the figure is a bit smaller in rural areas. In 2003 approx. 70 % of farmers had a computer and approx. 55 % of all farmers also had an Internet connection (Kommeri 2003, Statistics Finland 2003). 63 % of rural food SMEs had the Internet connection in 2002 (Viitaharju and Lähdesmäki 2002) and over 50 % of forest owners were reported to have the Internet connection in 2004 (Sivula 2004).

The most significant benefits for SMEs of the use of Internet are: saving time (possibility to manage operations easier and faster, flexibility, on-line possibilities, accessibility to updated information), saving money (related to saving the time, savings in labour and logistic operations etc.) and relating to benefits mentioned above, indifference to business location. The most used Internet services seem to be e-mail (communication), online banking and information

search services. The most utilised public Internet service was in 2003 Internet service of tax administration. Approx. one third of SMEs have taken part to some kind of portals. Unfortunately portals have been mainly disappointments for entrepreneurs.

On the grounds of the use of Internet, SMEs can be divided according Berg et al. (1999) into three different kind of groups: SMEs that do not utilise Internet at all (10 % in 1999), passive users of Internet (70 % in 1999) and active users of Internet (20 % in 1999). According to the latest estimations, the amount of non-users seems to be decreased, however at the same time the amount of active users has not increased. In most rural SMEs utilisation of ICT is not yet integrated to the business strategies.

As barriers to ICT-utilisation in SMEs was mentioned e.g. that there was not a suitable business idea for e-business or e-services are not suitable for micro businesses. Also the lack of knowledge and skills, lack of knowledge of cost efficiency in implementation and lack of knowledge of public services hindered the use of Internet in the companies. Public services are still shattered, there are risks in data security as well as technical problems (incompatible systems).

Concerning the ICT skills of rural SMEs, there has been a lot of development activities to enhance the use of ICT. The level of ICT skills is improving constantly, but there is still a long way to fluent integration of ICT to business operations. The age is one significant factor dividing the entrepreneurs to non-users/passive users and active Internet users. There have been a lot of educational courses, but they are not quite what SMEs are looking for. Also entrepreneurs' lack of time to participate to courses is one significant barrier to learning new skills. From the methodological aspect, the role of peer group or other entrepreneur as an educator has been seen very successful. Also the continuity of the support is essential. However, as recent study about trust in e-services show, entrepreneurs don't necessarily do a lot of benchmarking and share their experiences of ICT with their colleagues (Tiainen, Luomala, Kurki ja Mäkelä 2004).

In conclusion, most of Finnish rural SMEs have not yet realised all the potential benefits offered by Internet services and the use of Internet is not yet seen as a part of business culture. At the moment SMEs use mainly more or less obligatory public external expert services (e.g. tax authorities). However, utilising widely external expert services might benefit especially the small rural SMEs, since they do not have possibilities to hire new skilled full-time staff for different business operations. Offering expert services in e-form may promote the use of external experts in remote rural SMEs (easy access to the external information), though the SMEs see that the accessibility of the services is not sufficient at the moment, products are not customer orientated enough and a support system is needed. However, before e-expert services can be fully utilised, there are more than just technical problems to be solved. The main problems seem to be in utilisation of the external knowledge in business actions and knowledge management. This necessitates new way of thinking also from the entrepreneurs and highlights the importance of entrepreneurs capability to apply the information to his/hers own business actions.

At the moment there are more or less infrastructure, recourses (e.g. project funding) and even education needed available for the further adaptation of ICT technologies in rural SMEs. One of the main obstacles is the lack of ICT culture in SMEs (i.e. use of ICT as a natural part of everyday business operations and business strategies). The development of new ICT tools has been very rapid, but the business culture has not been able to keep track of technological development.

Since it seems that the use of external information for business actions by using ICT technologies or otherwise is not fully integrated to rural SMEs business culture, it is relevant to gain more information of the role of information in business decisions and the SMEs' acquisition of information through different kind of delivery mechanisms. These are some of the issues requiring attention in second phase of the project.

Keywords: business information, ICT, small and medium sized enterprises, rural SMEs, e-expert services, nature-based entrepreneurs, NBEs, micro enterprises, rural enterprises, rural areas.

1 Enterprise Culture of the Rural Small and Medium Sized Enterprises

1.1 SME Profile in Finland

There have been great expectations to entrepreneurship in Finland after the depression in the early 1990's. Starting new enterprises, improving the operational precondition of entrepreneurship, motivating to entrepreneurship by education, counselling and assistance are emphasised in government platform as well as in national and regional strategies and programmes. It is assumed that entrepreneurship will create new jobs and generate economic growth. In Finnish rural policy one of the main priorities has been the reform of the economic activities in rural areas which means in practice development and promotion of multifunctional agriculture, diversified farms and first of all rural entrepreneurship (Heinonen 2000, Maaseutupoliittinen kokonaisuohjelma 2004).

As for the entrepreneurship itself, successful entrepreneurship is based on solid business idea and the know-how in business in the first place, and in that sense to be an entrepreneur in rural area does not differ remarkable from that of urban areas (Heinonen 2000). For making a business or an enterprise successful, many factors are affecting both outside (e.g. legislation, competition and demand) as well as inside the enterprise (e.g. good products/services, personnel, location, up-dated technology etc.). In successful enterprises the products are based on careful study of the market demands, and especially good customer relationships are vital to small enterprises, because in the small flow of customers every person counts. In small and micro enterprises the competence and personal capacity of the entrepreneur manager are especially highlighted as key factors for success (Littunen 1994, Ruokokangas 1996.)

Although the entrepreneurship processes are basically equivalent in rural and urban areas and although even the most remote rural areas do follow the general economic development trends, the structures of the small rural enterprises differ from the enterprises operating in urban areas. It can be said that rural enterprises are engaged in more "traditional" industries. (Rantamäki-Lahtinen 2000.) Also some of the challenges of rural enterprises vary from challenges of entrepreneurship in urban areas. Problems of the small rural enterprises stem according to Ruokokangas (1996) from inadequate knowledge and skills or overestimating the resources and possibilities of the enterprise or entrepreneur. Rural firms are often very dependent on their operational environment and often too dependent on one product. Flexibility is a possibility for rural SMEs, but the ability to be flexible necessitates both human and economical resources. (Ruokokangas 1996.)

Because of the universal phenomena in entrepreneurship regardless of the location of the company, it is important to focus on promotion of entrepreneurship in general, but especially concerning NPP-area, it is also important to notice the differences between urban and rural businesses and take in consideration the operational environment of rural small and medium sized enterprises (SMEs). In this literature review focus is on the means promoting (rural) entrepreneurship in Finland, on the use of the information and communication

technology (ICT) in Finnish SMEs and also on the availability and use of so called knowledge oriented or expert services for SMEs in Finland.

To start with the short description of Finnish SMEs, it can be stated that in Finland 85,7 % of all companies employ less than 4 people and the turnover of those firms covers 11,1% of the turnover of all companies in Finland. When studying the average amount of the employees in Finnish companies, the average in NPP-area (5,0 employees/company) is a bit smaller than in whole country (5,7 employees/company) (Statistical Yearbook of Finland 2003, Pk-yritysbarometri 2004). It can be said, that especially in rural and NPP-area, most of the Finnish SMEs are employing less than 10 persons and are actually micro enterprises based on a EU Commission's definition of small and medium sized enterprises. Commission has approved changes to the EU definition of micro, small and medium-sized enterprises in 2003 and the new definition retains the staff number thresholds, but raises the financial ceilings (turnover or balance sheet total) to take account of inflation and productivity growth. It should be noted here that when the term SME is used, it often refers to small or even micro size enterprises.

When considered rural SMEs, it is essential to distinguish the different types of rural firms. Small rural business register shows that there has been 88 800 active farms and 61 100 small rural firms in Finland in 1996. On that time 7700 of those rural firms were farm connected. In 2000 there were 79 800 active farms and 64 600 small rural firms of which 8039 were farm connected. That equals 29 % of all small enterprises (in this context 'small enterprise' means an enterprise which employs less than 20 person) in Finland. What can be noticed is the fact that the number of small rural enterprises has increased during the late 1990's. For comparison in 2000 there were 1800 medium size or large rural enterprises giving work to 52 000 people. (Rantamäki-Lahtinen 2000, Maaseutupoliittinen kokonaisuohjelma 2004.)

On the other hand the number of farms has decreased in Finland especially after the joining in the European Union in 1995. Researchers predict that the level of agricultural production will remain at the current level but the number of the farms will fall radically. It is predicted that the number of farms will decrease from approx. 90 000 in 1998 to 30 000–40 000 by the year 2008. This will cause many problems in rural areas, such as unemployment. One alternative source of income is to engage in some other form of entrepreneurship besides farming. (Rantamäki-Lahtinen 2000.)

The new forms of livelihood in rural areas, whether they are connected to farming or not, are seen to be based on a few expansive branches. These branches are: wood sector, small scale food industry, tourism, the use of recurrent energy and ICT. As a whole, the importance of service sector is seen to be increasing. Also the line between the paid work and entrepreneurship will get thinner in the future. So called network society will change the characters of work: the production and work itself will be organised as networks, which might offer new opportunities to small business entrepreneurs in the rural areas as well. (Maaseutupoliittinen... 2004.)

One example of the new forms of entrepreneurship in rural areas is nature-based entrepreneurship which is defined as environmentally responsible entrepreneurship based on resources and experiences offered by nature. Nature-based entrepreneurship offers e.g. tourism products, handicrafts and food products which are based on nature. The products can usually be described by attributes: nature-centred, responsible, domestic, local, hand-crafted and individual. As typical rural enterprises NBEs are usually small, even if the current trend all over the Europe shows that there is real potential for the growth of these enterprises. They are typically located on sparsely populated areas, the distances to services are long and their resources are limited.

Good examples of nature-based entrepreneurship are:

- nature tourism and other experience services based on opportunities offered by nature
- environmentally responsible processing of wood and products obtained from trees other than in large and medium-size industry
- exploitation of wild berries, mushrooms, herbs and other produce gathered from nature and utilization of wild plants in landscaping
- sustainable exploitation of game, fish and crayfish
- small-scale exploitation of peat, stone and other minerals
- sustainable exploitation of water resources (eg. spring water), snow and ice
- other services based on nature (eg. photography of nature, implementation of recreation services).

The main factor of production for these companies is nature and also its immaterial values (e.g. silence, scenery, clean air etc.) Therefore the sustainability has a great role in nature-based entrepreneurship. (Rutanen and Luostarinen 2000.)

In Matilainen and Aro's research 2/3 of NBEs interviewed (n=153) were full-time entrepreneurs in the NBE sector. Approx. 70% of all entrepreneurs in the research employed less than 3 persons (Matilainen and Aro 2002). The companies operating in nature activities in Finland employ approx. 1-2 persons (Aalto et al. 1999). In handicraft enterprises there were approx. 2,1 persons working full-time per company (Käsityöyritysten tila ja kehitys 2000).

Nature-based entrepreneurship has been recognised as an important potential new livelihood for rural areas (e.g. Maaseutupoliittinen kokonaisuohjelma vuosille 2001–2004, 2000) and there are already thousands of rural entrepreneurs operating in the sector. Nature-based entrepreneurship can offer the livelihood for many rural entrepreneurs as a main business or as a secondary occupation. There is also rising a new generation of NBEs (educated especially to operate in the NBE sector), to whose business development activities the appropriate new technologies (e.g. ICT solutions) could bring major benefits (e.g. search for both national and international information and forming international networks).

The need for appropriate information sources in NBE sector has been noticed on the national level in Finland, and it has been mentioned e.g. in following programmes and action plans:

Nature-Based Entrepreneurship Plan of Action (Luontoyrittäjyyden toimintaohjelma, Ministry of Agriculture and Forestry, 1998), Working Group of Nature-Based Entrepreneurship, recommendations (Maaseutupolitiikan yhteistyöryhmä, 1999), Program for Nature Tourism and Recreational Use of Nature, recommendations (Ministry of Environment, 2002) and in Policy for Rural Areas (Maaseutupoliittinen kokonaisuohjelma) for 2001–2004.

1.2 Development Activities in the Rural SMEs

On national level the Finnish government implements the entrepreneurship policy programme as part of its economic and industrial policy. The programme enhances entrepreneurship in general. The main objectives of the current programme are to safeguard a stable and predictable operational environment for enterprises and to ensure that the resources available for promotion of entrepreneurship in various administrative branches will be utilised to the full. The programme also underlines the importance of enterprises and entrepreneurs in the construction of economic growth and employment.

The main focus of the entrepreneurship policy programme is on concrete projects that support entrepreneurship. The programme consists of five sub-sectors:

- entrepreneurial training and consultancy
- establishment, growth and internationalisation of enterprises
- entrepreneurial taxes and payments
- regional entrepreneurship
- provisions governing entrepreneurship and the functioning of markets

The policy programme will be carried out in collaboration with the private sector. (Entrepreneurship Policy Programme: <http://www.valtioneuvosto.fi/vn/liston/base.lsp?r=40240&k=en>).

The EU membership has increased and diversified especially the means available for rural development. The focal areas in rural development in Finland are strengthening agriculture and forestry, increasing the competitiveness of rural areas, conservation of the environment and rural heritage and promoting the interaction between the rural and urban areas. In the EU programme period 2000–2006, the development programmes emphasise territorial approach, promoting entrepreneurship, searching for new business solutions and close cooperation between different parties. The rural development programmes are mainly funded through the EAGGF, but the other funds also contribute to rural development. The regional programmes in Finland are the Objective 1 and 2 Programmes as well as the Regional Rural Development Programme (ALMA). The Community Initiatives implemented during the programming period 2000–2006 are Leader +, which finances local development projects, and Interreg III for border area cooperation. (http://www.mmm.fi/english/agriculture/rural_areas/.)

The most important development challenges for SMEs are marketing, product development, internationalisation, overall improvement of business activities and personnel training, which

are all consuming a lot of resources. Rural enterprises don't necessarily see the importance of marketing and outside assistance for that is not easily sought. Ideas for product development are usually born from practical contexts and development is not as systematic as in bigger companies because it ties up resources. (Ruokokangas 1996.)

In small rural enterprises the long distances and the fact that the production process binds the employees to their work, are reasons, why it is difficult for the personnel to participate in training or other development processes. However, they are expected to keep up with the progress and be responsive to change. One solution for this could be provided by ICT as it liberates from some hindrance of time and place. (Karjalainen & Era 2001.) The development efforts concerning utilisation of ICT is presented more in details in chapter 2.7.

1.3 SMEs' Acquisition of Information

Complexity of the operational environment of the present-day SMEs, internationalisation, continuous development of the information technology and the significance of immaterial capital (human capital, know-how) as competitive weapons evokes the need for information and expertise in SMEs. Ability to utilise and apply information are significant factors in developing business and succeeding in competition. It can be said that information gives the competition advantage to the businesses. (<http://www.pkt.fi/news/webnahat/web401/heli.htm>.)

The information needs of SMEs can be divided roughly into three categories:

- 1) regulations related to business (legislation, contracts, rules etc.),
- 2) information needed in conducting business (markets, financing, production),
- 3) information needed developing business (possibilities, product development, knowledge development). (<http://www.pkt.fi/news/webnahat/web401/heli.htm>.)

Firms have in principle four different kind of methods to search and manage information (knowledge) they need:

- To use the human resources they have
- To recruit new personnel
- To buy expert services outside the firm
- To collaborate with other firms. (Storhammar 1995.)

It has been found out that in integrating trade markets especially SMEs have problems to get updated information e.g. on international legislation reflecting in their business operations in time. SMEs do not have the resources to utilise information concerning their operational environment. The majority of information is not noticed at all. On the other hand, when the information is needed, SMEs can not find this information. The information can also be formed in such way, that SMEs do not understand or can not utilise it. (<http://www.pkt.fi/news/webnahat/web401/heli.htm>.)

SMEs are not proactive as for the acquisition of information. Actually the information is not sought for until it is needed (Kaipainen 1989). When information is needed, it's supposed to be quickly at hand. SMEs use many sources of information. The sources are both verbal (e.g.: customers, other entrepreneurs, experts) and printed/written (e.g. publications, reports, researches, information in Internet etc.). (Sapman 1999.)

The significance of knowledge in decision making and risk control is essential. When Finnish entrepreneurs were asked, what kind of information is needed in decision making process and what this information is related to, their answers were as follows:

- information related their own field of industry (future trends and estimations, information for comparisons, current information on the situation on their field of industry)
- situation related information (can be very specific and difficult to categorise. The information needs vary depending on the problems at hand) (Saapunki 2002).

The information needed is related to the target of decision, the influences of the decision (how wide they are) and the knowledge and experiences of person making decisions. Also the role of tacit knowledge is significant in decision making. (Saapunki 2002.)

Information networks give an ability for SMEs to obtain information they need. The use of ICT gives especially for rural SMEs access to such services (e.g. design or marketing) that have not been easily at hand before. (Maaseutupoliittinen... 2004.)

2 SMEs and ICT

2.1 The Use of Internet and ICT Technologies in Finland

The most of the rural businesses are relatively small in Finland, especially when the focus is on nature-based entrepreneurship (see chapter 1.1.) and diversified farming, which can be also in a role of secondary occupation. The personal use of ICT technologies reflects strongly to the professional use. Therefore it might be useful also to have an overview to Finland as a information society.

The know-how in ICT technology production is on a very high level in Finland. The reason for the success has been the knowledge of effective producing. In using the possibilities of ICT and ICT services, Finland is only on the average level in comparison with other countries. One reason for this is the lack of entrepreneurial activities in the ICT service sector. Even though in 1990's the number of ICT-companies jumped up temporarily, during the last few years the number has declined radically. Other reasons are underutilisation of existing infrastructure and the fact that the adoption of ICT services by different user groups has been longer process as expected. One of the biggest challenges in the future is effective utilisation of technologies (Vuorio and Yli-Viikari 2004).

In 2003 there were 221 Internet connections per 1 000 inhabitants in Finland. Almost 2,8 million Finnish people have used Internet, which means 54,6 % of total population. (Statistical Yearbook of Finland 2003). The age is one significant factor effecting to use of Internet. From population under 35 years, over 80 % have used Internet, when the same proposition of population over 50 years is only approx. 25 %. However, generally over 50 % of population between 15–74 years have used Internet. (Julkishallinnon verkkopalvelut... 2002). 44,6 % of total population use Internet every week. (Statistical Yearbook of Finland 2003). The amount of the people using Internet can be estimated continuing to increase, also in rural areas.

In summer 2002 approx. 55 % of Finnish households had at least one computer at home, however, only approx. 40 % of all households had an Internet connection (Nurmela, Parjo and Ylitalo 2003). The amount of computers and Internet connections is increasing rapidly. According to National Consumer barometer (Kuluttajabarometri) in 2004 already 64,1 % of households had a computer and 51,3 % had also an Internet connection (Kuluttajabarometri... 2004). In Koivumäki and Soronen's research it was estimated that in 2004 approx. 62 % of Finnish population lived in a household that had some kind of Internet connection. 34 % of these are broadband connections (ADSL, cable modem, LAN, WLAN) (Koivumäki and Soronen 2004).

There are 0,73 broadband connections per 100 inhabitants in Finland. They are still rare especially in remote areas and household use. Anyhow, there are not yet ways to reliably measure the use of broadband connections, because the number of household users is still too small for an ordinary questionnaire survey (Nurmela, Parjo and Ylitalo 2003). However, the penetration of broadband is increasing rapidly. In 2004 about 21 % of the households

had an broadband connection when the same figure in 2002 was only 8 % . There are still huge regional differences in broadband penetration (Koivumäki and Soronen 2004). According to Consumer barometer the figures for year 2004 are a bit higher. According the results it was estimated, that in summer 2004 26,1% of Finnish households had a broadband or corresponding Internet connection. (Kuluttajabarometri...2004)

In general, over 90 % of all companies in Finland used Internet in 2003. The field of industry using the least Internet according to official statistic classification was accommodation and food services (approx. 83 %) (Statistical Yearbook of Finland 2003). The proposition within rural SMEs is estimated to be a bit smaller. It has been discovered that the standard of ICT equipment is tended to decline with declining company size (Nurmela, Parjo and Ylitalo 2003).

As a part of the AsPIRE (Aspatial Peripherality, Innovation and Rural Economy) project was carried out a telephone survey concerning ICT use of the rural SMEs. In Finland total 100 rural firms were interviewed (50 in Keski-Suomi (Central Finland) and 50 in Satakunta regions). The firms for the survey were selected by using random stratified sampling and most of the companies represented traditional fields of rural industries like wood, metal, machinery, food, tourism and basic services etc. Total number of employees in majority of firms was below 10.

Only few firms had GPS, advanced audio-video technologies or satellite communications. Almost all of the companies had access to Internet. PSTN, ISDN and ADSL were the most common types of Internet connections. In Keski-Suomi region most of the firms surveyed access the Internet using either PSTN/Dial Up or ISDN connection modes. In Keski-Suomi approximately 8 % of firms have PSTN/Dial Up connection, some 15 % ISDN and some 10 % ADSL connection mode. Chief Executive was most often in charge of IT planning in companies (Keski-Suomi regional report... 2004).

It has also been studied that SMEs are in many cases actually quite keen on trying out new ICT systems. However adoption to the actual business is considered very carefully and it is based on the needs and resources of the enterprises. Therefore the basic statistics measuring e.g. Internet connections do not necessarily describe correctly the actual use of Internet or Internet services. Analysing the use of ICT-systems always requires more deeper research aspects (Riihimaa 2004).

In 1999 about 54 % of SMEs used Internet every day according to Berg et al.'s research. In service sector the use of Internet was the most common (59 % used every day). The same phenomenon that is seen in total population applies also to SMEs: younger entrepreneurs used Internet more than older ones (e.g. Berg et al. 1999, Statistics Finland 2003). There are researches, however, in which the age of entrepreneur has not correlated to the use of Internet (e.g. Viitaharju and Lähdesmäki 2002).

According to Berg et al. (1999), the use of Internet by Finnish SMEs can be divided in three categories:

- 1) SMEs that do not utilise Internet.
 - Companies do not use Internet at all. In 1999 about 20 % of SMEs still belonged in to this category.
- 2) Passive users of Internet
 - Enterprises that use e.g. e-mail, but Internet is not yet a part of everyday business actions in company. Most of SMEs in Finland are passive users of Internet. In 1999 about 70 % of SMEs belonged to this category.
- 3) Active users of Internet
 - Entrepreneurs who realise the possibilities offered by Internet and utilise it widely in their business actions. Only approx. 10 % of companies belong in to this category.

This classification can be seen as parallel to Kalakota and Whinston's (1997) model of development of Internet marketing:

1. Absence (company does not see the potential possibilities in use of Internet)
2. Presence in Internet (company has a web site, however there is no planned strategy for the web site)
3. Product information in Internet (company has product information in e.g. their web site. Customers have a possibility for contacting company)
4. Selling and interactivity (utilising Internet as a selling channel as well as for marketing)
5. Integrating internal information and knowledge systems, integrating web services to existing production systems
6. Totally integrated business model. All essential business operations utilise web technologies.

(Kalakota and Whinston 1997).

In the light of Official statistics from the last few years and results of researches e.g. by Nurmela et al 2003, Viitaharju and Lähdesmäki 2002, Sivula 2004 and Berg et al 1999, it can be estimated, that the amount of SMEs not using Internet at all has decreased, but the amount of active users has not increased in same extent. The most of enterprises are still in so called passive users of Internet. The active use of Internet is increased the most within young entrepreneurs.

According to Kommeri's research 2003 approx. 65 % of farmers in Finland have a computer, and almost all of these have also an Internet connection (Kommeri 2003). In official statistics the same figures were a bit higher: 73 % of farmers have a computer and 56 % of them have also an Internet connection (Statistics Finland 2003).

In an average farm the computer has been a part of their entrepreneurship already approx. 6,3 years. The most common connection to Internet is through modem. In 2003, 75 % of computer owning farmers have their Internet connection through modem. 70% utilise Internet services in their farm operations. (Kommeri 2003). The services used the most by Internet are e-mail and e-banking. Many farms also use Internet services in applying subsidies (the applications forms and guides are available in Internet) (Statistics Finland 2003).

In Finland within farmers the use of Internet and other e-services is a bit more vivid than among other rural SMEs. During last decade there has been a lot of development activities and services supporting the farmers to purchase a computer and start to use Internet in their business actions (see chapter 2.7.) (Vuorio and Yli-Viikari 2004).

According to Viitaharju and Lähdesmäki's research (2002) 63 % of rural food SMEs interviewed (n=64) had an Internet connection. In average approx. 46 % of the sampled businesses used Internet for general use at least once a week (Viitaharju and Lähdesmäki 2002).

In food industry sector in 2003 about 95 % of all actors in the field used Internet at least once a week, 75 % of them from daily basis. However, in this research only 10 % of the answers came from producers. Most important reasons to use Internet were following current information and searching contact information and publications. (Elintarvikesektorin toimijoiden...2003)

In Sivula's research of forest owners, it was found out that more than half of forest owners have a computer and an Internet connection. Some of these are also farmers. It is estimated that Internet based services related to forestry, forest planning and forest information updating and services, e.g forestry plans in Internet are going to increase in the near future. The knowledge and skills of forest owners and representatives of organisations will be decisive in realising the actual benefits of new services (Sivula 2004).

According to Rutanen and Matilainen (2001) the most common Internet connection among NBEs was PSTN/Dial Up. Only a few entrepreneurs had broadband connection (Rutanen and Matilainen 2001).

Handicraft sector has estimated to be the one of the slowest sectors in implementing modern ICT technologies. The results of Käsityöyritysten tila 2000 –research stated that in 2000 approx. half of enterprises concentrated on crafts had an Internet-connection (Käsityöyritysten...2000), however, the results of regional studies in 2003 indicate that the figure has dramatically increased during the last few years. In 2003 over 90% of companies had used Internet connection in business actions (Lintula 2003). This development has most likely been influenced strongly by the intensive development activities to promote the use of ICT in handicraft sector.

However, in general the most of the Finnish SMEs have not yet realised all the potential benefits offered by Internet. For instance in the light of statistics from the last few years, the Finnish enterprises have been quite keen to set up Internet connections. However, they have not been so active in use of Internet e.g. to promote their own business. E.g. companies have been quite slow to open their own webpages or to launch e-commerce services (Nurmela, Parjo and Ylitalo 2003).

The use of Internet is not yet seen as a part of business culture, it has been more or less an individual tool, which is not intergrated to other business actions. E.g. e-business and utilisation

of modern ICT-technologies are not yet taken in to the companies' business strategy plans. According to Tietoyhteiskunta 2000+ -research in 2001 only 26 % of SMEs in business to business -sector have taken use of Internet, e-services and solutions of ICT-technologies as a part of their business strategy. 32 % of companies have, however, paid attention to it on individual project level. 39% have not any kind of plan related to use of Internet in their business actions. (Selvitys pk-yritysten... 2001). The figures were about the same also in follow-up study in 2003 (Lahtinen and Roose 2003).

The companies studied in those researches were SMEs employing 10–99 people. Therefore it can be estimated that the number of rural SMEs (microcompanies) that do not have any kind of strategic plan concerning the use of Internet for business actions is significantly higher. It has been estimated that the size of the company correlates strongly with the level of strategic planning of ICT-issues (Lahtinen and Roose 2003).

Websites

According to Tietoyhteiskunta 2000+ –project approx. 85 % of all SMEs had their own web sites in 2001. (Selvitys pk-yritysten... 2001). According to Viitaharju and Lähdesmäki's research 2002 concerning rural food industry companies, only one third had their own homepages (Viitaharju and Lähdesmäki 2002).

The role of own web sites is for 98 % of SMEs to provide basic information on the company. 88 % of companies have established their own websites because, they believe, that having websites improves the possibilities to contact the company for customers and interest groups. 84 % of SMEs have some product introductions in their websites and 77 % have built in their web site possibilities to give feedback to the company. Only 37 % of all SMEs have in their websites possibility to order products or ask for tenders and 30 % provides some specific information about the prices. In entrepreneurs' opinion, the websites of the company should be rather updated and correct than covering all possible aspects and be too complicated in structure. (Selvitys pk-yritysten... 2001).

When studying smaller and micro companies, turnover less than 10 Million FIM (1,68 Million Euros), in more details, 77 % of the companies provided some product information in their web sites and only 20 % of micro companies provided some price information of the products and services. In general, the most of the SMEs do not fully utilise their web sites. E.g. practically none of the companies surveyed or analysed the "traffic" in their own web sites. (Selvitys pk-yritysten 2001).

One third of SMEs took part into some kind of Internet portals in 2001 (Selvitys pk-yritysten... 2001). According to Tietoyhteiskunta 2000+ -research in 2001 (SMEs in business to business sector), 17 % of these entrepreneurs were in actual e-business and participated in electrical marketing place as product or service supplier. In 2003 the figure indicating the participating to electrical marketplaces was around 48 % (Lahtinen and Roose 2003). According the same research, in 2001, 29 % of SMEs in business to business -sector had their contact information or Internet link in some industry specific or regional portal. 10 % participated in different kind of "general portals". (Selvitys pk-yritysten... 2001).

The portals and participating in them have been mainly disappointments to the companies. SMEs do not believe that portals will bring extra value to main business actions. They have participated because they believe that being within portals supports their other marketing actions and has a positive influence to company's image. The problem with portals has been, that they usually are too general, including too much information and therefore their impressiveness in marketing is low. They operate often in "everything to everybody" -principle. Instead just to transfer written information from the brochure in to electronic form, which is usually the case, the portals should also bring some concrete added value to e.g. the companies marketing strategy (Selvitys pk-yrittäjien... 2001). According Lahtinen and Roose only 1 % of SMEs was very satisfied with portals and electronic marketing places (Lahtinen and Roose 2003).

From SMEs' own point of view the most important aspect in developing use of Internet is developing company's own web page. They saw it as the most important sector to improve the communication and interaction systems with markets and in customer service. (Selvitys pk-yrittäjien... 2001).

Even if the use of Internet among SMEs has increased significantly during the last few years, the companies have not, however, developed their own Internet services (home pages etc) in same extent as anticipated. Anyhow, over 80 % of SMEs anticipated, that their company will have their own home pages within few years. (Berg et al 1999). Also according to Viitaharju and Lähdesmäki (2002) rather large group of entrepreneurs indicate that they have considered having their own pages or the pages would be done in near future (Viitaharju and Lähdesmäki 2002).

Mobile services

In Finland the Internet, knowledge networks and mobile phones came in common use approximately at the same time. Even the use of Internet has increased rapidly, it has however been slower than the growth of use of mobile phones (Nurmela 2000).

According to SIBIS (Statistical Indicators Benchmarking the Information Society) survey 2002, in Finland over 80 % of population aged 15–74 had a mobile phone in their own use. In Kangassalo's consumer survey in 2002 the figure was 86 %. According a Consumer barometer in 2004 94,6% of Finnish households had an mobile phone (Kuluttajabarometri...2004). In European level the figure is the highest. However, according to the Ministry of Transportation and Communication in 2002, approx. 28 SMS messages was sent per GSM subscription monthly (Tekstiviestintä aikuistuu...2003), which is surprisingly low compared to mobile phone penetration. The mobile phone network covers the whole Finland. The cost of mobile phone calls to private household in Finland is among the lowest in the OECD countries (Nurmela, Parjo and Ylitalo 2003).

Erikson et al. studied in 2001 the use of mobile phone in Finnish population. The respondents were over 18 years and the data was collected via Internet. According to that study approximately one third of respondents have used different kind of mobile services. The most active user groups are experts in ICT business and people using company mobile

phones, often WAP phones. Men use mobile services significantly more than women. Women are more interested in informational services, whereas, men use also entertainment services. The most used services are logos, alarm voices and different kind of information retrieval services. People are also prepared to pay for informational services, but most of the users would like to pay according the actual use, not e.g. standard monthly fee. The problems restraining the use of mobile services have been price and lack of knowledge of the services. According to this research, it seems that most of the mobile services have not been directly planned to help everyday business operations or they are not targeted to the people paying their own phone bills (Erikson et al. 2001).

The use of mobile phones in rural SMEs is more common than the use of Internet. E.g. according to AsPIRE and SUPPLIERS (Supply Chains Linking Food SMEs in Europe's Lagging Rural Regions) researches all of the firms in Finland participating to the research had mobile telephones in use. (Viitaharju and Lähdesmäki 2002, Keski-Suomi regional report 2004) However, the mobile phone was used mainly only for telephone conversations. The same results came evident in Tiainen et. al's research in 2004. Rural micro companies used and perceived mobile phones mainly for telephone conversation use, and they did not indicate strong interest towards other services provided via mobile phone (Tiainen et al. 2004)

Anyhow, according to Tietoyhteiskunta 2000 + -project, 23 % of SMEs in business to business sector were interested in developing mobile services, though usually those were companies, whose turnover was more than 16,7 M EUR (Selvitys pk-yritysten... 2001).

2.2 Attitudes Towards the Use of ICT

It has been found out in several researches that, in general, SMEs' attitudes towards the use of Internet are mainly positive (see e.g. Lahtinen and Roose 2003, Petäjä and Varamäki 2003, Selvitys pk-yritysten ...2001, Sivula 2004,), or in the case of rural SMEs, slightly positive or neutral (Tiainen et al, 2004). Also it is evident that rural SMEs see ICT solutions only as a tool for their business operations. They usually have absolutely no interest towards the technology itself. It doesn't matter, how modern and genius technological solutions are, they have no added value for entrepreneurs because of the use of modern technology. Rural SMEs are interested just in the visible benefits that might help in their everyday business operations. (Tiainen et. al. 2004).

However, even though the attitudes towards the general idea of Internet are positive, the SMEs usually mention many different kind of obstacles, why the use of Internet does not fit in to their own business operations (see e.g. Petäjä and Varamäki 2003). Some of these obstacles are real, prohibiting the use, but as often they can be based on general discussion on obstacles in using Internet. This is the case, especially when the person in question does not have experiences or actual knowledge on ICT-services. The attitudes reflect the general discussion (Tiainen et al. 2004, Internetiä käyttämättömät....2003).

There are a lot of issues effecting the attitudes of the entrepreneurs. These can be in addition to general discussion, e.g. entrepreneurs' own experiences, experiences of the other entrepreneurs, social environment of the entrepreneur, the image of the service provider, the knowledge of the services and ICT skills of entrepreneur, trust towards the technology, the product, the product provider etc. (Tiainen et. al 2004). People and entrepreneurs that have actually used Internet services have usually more positive attitudes towards them (see e.g. Internetiä käyttämättömät....2003, Berg et al. 1999 and Selvitys pk-yritysten... 2001).

2.3 Benefits of the Use of ICT for SMEs

The use of Internet can provide numerous benefits to company's business operations. The role of Internet in business operations can be divided roughly into three different categories:

- I) Logistics (ordering, pricing, following delivers, product support to the users)
- II) Internal operations (communication, global information, management planning, strategy planning co-operation with authorities and other interest groups, external experts etc.)
- III) Customer management (marketing and product information, feed back from customers, communication, marketing research, selling, support and customer service etc.) (Ruohonen and Seesto 1996).

For small companies one very potential competitive weapon is long developed specialising. E-business offers significant possibilities also for rural entrepreneurs to market and sell tailored product to small target groups (so called niche marketing). Successful, specialised e-business, however requires good knowledge and understanding of the markets and target groups. (Ovaskainen and Ritsilä 2001)

In general, the most significant benefits for SMEs in use of Internet are: saving time (possibility to manage operations easier and faster, flexibility, on-line possibilities, accessibility to updated information), saving money (related to saving time, savings in labour and logistic operations etc.) and relating to benefits mentioned above, indifference to business location.

The services mentioned as most beneficial by SMEs practically in every research are e-mail (communication etc.), banking services, information search services (updated information easily) and services for marketing and advertising. The most popular services have stayed at the top of the list almost for 10 years. (e.g. Lahtinen and Roose 2003, Karjalainen and Era 2001, Selvitys pk-yritysten... 2001, Berg et al. 1999, Jääskeläinen and Väänänen 1996)

42 % of Finnish SMEs saw the role of Internet as significant to their business operations in 1999. At the same time 23 % of all SMEs thought, that the use of Internet in their companies did not have any significant role at all regarding their business operations. The trend, however, shows that the SMEs see the role of Internet increasing constantly in their business operations.

The more the entrepreneurs have used Internet in their business actions, the more important they saw it. The most important benefits were speeding up the information transfer, make business operations more effective, help to seek new business partners and opportunities, benchmarking and collecting feedback from customers (Berg et al. 1999).

According to Lahtinen and Roose (2003) SMEs saw improving customer service as the most important possibility offered by Internet. Almost as significant possibility was to reassert the company's image or brand and possibilities for tight co-operation with business partners. Also it was seen that Internet could make business processes more effective (especially communication, customer service and management). However, SMEs did not see the use of Internet to benefit so much their product development processes (Lahtinen and Roose 2003).

As the main benefits of Internet services the farmers saw possibility to have business with public organisations from home and outside office hours. They also put a lot of emphasis into the fact that by using Internet services, they do not have to submit the same information many times to different governmental organizations (Kommeri 2003).

In Sivula's research 2004 the advisors and experts in forestry sector saw that ICT-technologies (mainly Internet and intranet) are coming as a part of everyday work. The services targeted to the forest owners in Finland are in the process of transferring to e-services. The cost savings are significant. However there is a clear need for traditional services as well. E.g. in Forest Management Associations the advisors do not have yet the required information of e-services targeted to forest owners. The common impression by the advisors and experts is that only a very small proportion of forest owners (mainly young and living far away from their forest property) would use Internet or even e-mail to conduct issues related to silviculture. This was also the result of Sivula's research. Only 10-20 % of forest owners are ready to take electrical services to active use immediately (Sivula 2004).

The Ministry of Transport and Communications made in 2003 a research, where it was estimated more in details the use and possible use of Internet among so called anti-Internet user groups. This means the user groups, which are in danger to isolate themselves from information society. This group does not use much ICT-technology at the moment and their attitudes towards using Internet in their homes are not very positive. However, even the anti-Internet user group saw some significant benefits in using Internet. They emphasised especially following benefits: saving time and effort, saving money, better communication possibilities and the help Internet provides to children in their home works (Internetiä käyttämättömät...2003).

2.4 Functions Supported by ICT in SMEs

As mentioned in chapter 2.3. in company's business operations there are numerous points where the use of Internet services might bring some added value. In general, Internet is mostly used for communication (including communication with authorities) and searching information. The most common individual service mentioned in practically all the researches

was banking online services (e.g. Lahtinen and Roose 2003, Karjalainen and Era 2001, Selvitys pk-yritysten... 2001, Berg et al. 1999, Jääskeläinen and Väänänen 1996).

In Berg's research (1999) it was found out that the most popular ways to use Internet in SMEs were communication and search for information. 76 % of SMEs used e-mail in communication with interest groups. 70 % of SMEs used Internet for searching information, 52 % used it for banking services, 35 % for communication/sending information to authorities, 28 % for ordering products and 22 % for telework (Berg et al. 1999).

According to the researches carried out in Tietoyhteiskunta 2000+ -project, the use of Internet in business actions in SMEs (turnover 10-90 Million FIM, results of interviews of 454 persons in 2001 and 476 in 2003) could be divided as presented in table 1.

Table 1. *The use of Internet in Finnish SMEs in different business actions.*

Business action	Year 2001, %	Year 2003, %
online banking services	94	94
internal information dissemination	66	63
disseminating documents	42	58
customer service	42	33
obtaining customer information	49	-
connections with public administration	41	47
receiving orders	40	37
purchasing by Internet	28	25
invoicing	25	33

Sources: Selvitys pk-yritysten... 2001., Lahtinen M. and Roose K. 2003.

Rural companies in Keski-Suomi region used the Internet mainly for banking online. The second most used Internet service was online public services. The use of Internet for recruitment or business to customer e-commerce was small as a whole (about 20 % of firms) (Keski-Suomi regional reports...2004). The results of the survey implemented by the Helsinki Chamber of commerce (Selvitys pk-yritysten...2001) were parallel as for the Internet use of banking online. In addition to, telephone survey revealed on a European level that the three most important uses of the Internet of the rural firms surveyed were: 1) markets and competitors, 2) banking online, 3) promotion and advertising (Grimes 2004). According to Vuorio and Viikari (2004) especially in rural SMEs the ICT is probably most utilised in marketing and telecommunications. It could, however, bring new possibilities to more effective production as well (Vuorio and Yli-Viikari 2004).

In the research of potential use of Internet among so called "anti-Internet user groups", as the most potential Internet services for this group were mentioned banking services, information search services and e-mail, which represents communication (Internetiä käyttämättömät...2003).

According to Koivumäki and Soronen's research on broadband connections, the used Internet connection (broadband, modem etc.) does not effect to the use of different kind of e-services. The services used by those, who have an broad band connection do not differ significantly to the use of those with modem connection (Koivumäki and Soronen 2004).

As it has became very evident in light of the researches mentioned above, one good example of successful Internet service in Finland is online banking. The first online banking service was opened in Finland in 1996. At the moment approx. a half of all bills are paid through Internet based banking services. (Kultaraha 2/2003). Most of the SMEs operate totally in Internet when it comes to banking services (e.g. *Selvitys pk-yritysten ...2001*, Lahtinen and Roose 2003, Berg et al. 1999.)

According to the research by Tietoyhteiskunta 2000+ -project 87 % on companies were satisfied especially with electronic banking services (*Selvitys pk-yrityksien... 2001*). In 2003 the same figure was 89 % (Lahtinen and Roose 2003). It can be said, that Internet based banking services has been quite successful, even among those groups that can be defined as "anti-Internet users" (*Internetiä käyttämättömät...2003*).

The most used public e-service by SMEs is the e-service of tax administration (Lahtinen and Roose 2003). According Tietoyhteiskunta 2000+ -project in 2001, 52 % of SMEs and in 2003, 51 % of SMEs were quite satisfied with Internet services offered by public authorities, however very satisfied to them were only 3 % of SMEs in both researches. Approx. 30 % were more or less satisfied with consulting services offered through web. 30 % of SMEs were not satisfied with them in 2001. (*Selvitys pk-yritysten... 2001*). The situation was about the same in 2003. (Lahtinen and Roose 2003)

According the ASPIRE project, it generally seems that rural companies are quite satisfied with Internet services in Keski-Suomi region. Satisfaction with technical assistance is high and about 70 % of respondents were satisfied with the services. More than half of the firms were satisfied with speed of access and call charges as well. (Grimes 2004, Keski-Suomi Regional Report... 2004)

The ICT technologies promote the networking in whole society. That requires more and more effective information and communication systems to meet these challenges. To meet the needs of SMEs, however, they should be flexible, capable to better information transfer with in the networks as well as between different actors. One concrete step towards this could be e.g. common standardised connections (Riihimaa 2004).

According to Lääninhallitusten verkkopalvelustrategia 2004–2007 (Internet service strategy of County Administrative Boards 2004–2007) the principles for good Internet service are e.g. good access to services (developed retrieval systems, independency of the software used), the benefits of Internet service must be larger than traditional services, marketing of Internet services, reliability of the services and equal treatment for all customers.

According to Kotila and Ollikainen's (2000) research the computer was used in SMEs in Seinäjoki area mostly for internal management (payments, customer register), word processing and in communicating through e-mail. However it has also been found out that there is still a clear need for internal management packages, which are suitable for micro businesses (1–2 persons) and services available through Internet (e.g. public services) (Vuorio and Yli-Viikari 2004).

e-commerce

Actual e-business is not yet very popular among Finnish SMEs. Especially among rural entrepreneurs it is quite rare (see Grimes 2004). Some of companies have, however, participated in different kind electric marketing places (see chapter 2.1).

As for the developing of e-commerce and the reasons, it has to be stressed that more than half of the rural firms answered that e-commerce was inappropriate for their products and services (Grimes 2004). The same issue has come out also in other researches (see e.g. Berg et al. 1999). Other barriers to develop an e-commerce strategy were: lack of technical support and knowledge of the Internet, costs of implementation and security fears. The size of customer base was also mentioned as a problem in some cases. Those companies that had developed e-commerce had developed it mainly because of efficiency, to pace with competitors and for new markets (Grimes 2004) In many cases the use of e-commerce still correlates with the size of the company (e.g. Lahtinen and Roose 2003)

In the literature concerning e-business and e-commerce, more and more often is highlighted also a term m-commerce (commerce based on mobile techniques). From Finnish point of view the growing interest to mobile solutions is significant, since the mobile technologies and networks are very developed and also long distances attract to create mobile solutions. From this aspect it is very vital for e-service producers to consider multichannel-solutions. Also the role of knowledge of different kind of information delivery mechanisms in increasing (Ovaskainen & Ritsilä 2001).

2.5 Regional Differences

With the increased diffusion of information and communication technologies throughout most areas of economy and society, SMEs are becoming increasingly aware of the need to face the challenge of effectively exploiting the opportunities presented by the digital economy. One major challenge which rural SMEs are facing is that relatively bounded rural market areas are now becoming increasingly exposed to intense competition from outside companies engaging in e-commerce. Therefore SMEs in rural areas face very considerable challenges in seeking to ensure that they can exploit the potential benefits presented by the new technologies. (Grimes 2004.)

It has been estimated that isolated areas are also isolated in information society (Romppainen 2002). From SMEs point of view the main question is, do the IT-technologies make rural and urban areas more equal or give SMEs equal opportunities in urban and rural areas?

Grimes (2003, 2004) states that with the liberalisation of telecommunications markets in Europe in recent years and with the shift towards more expensive broadband infrastructure being associated with a reliance on market forces, there is a real danger that peripheral rural areas will become increasingly disconnected from the opportunities presented by the new digital economy. (Grimes 2003 and 2004). According to Storhammarin and Virkkala one of the critical disadvantages of the rural location for SMEs is the lack of networks related to innovation processes. These networks are usually situated outside of the area, where the company is located (Storhammar and Virkkala 2003).

It has also been found out that people living in rural areas seem to meet more difficulties and obstacles prohibiting the use of Internet in home than people living in urban areas. E.g. the purchasing of Internet connection can be more expensive and acquiring necessary knowledge for Internet use can be more difficult in rural areas. Also utilising public Internet access points (libraries etc.) is more difficult than in urban areas (Internetiä käyttämättömät...2003). The phone companies are not interested to invest e.g. to broadband just to connect a few households and the opportunities for mobile Internet connections are not yet practical enough for everyday use. It can be said that all municipalities in Finland have quick Internet connections. However, this applies only in centres of municipalities. In remote areas, the situation is more challenging. Through the modem practically all Finnish people have the possibility to have an Internet connection from their home. Anyhow, in practice this may be insufficient (Vuorio and Yliviikari 2004). According to Tyynelä 2003 in practice Finnish remote areas still are connected mainly through modem, even though modems have been replaced a long ago by ISDN, DSL or other techniques in areas where the density of the population is relatively big and therefore it has been economically sustainable to build more developed connections (Tyynelä 2003).

This can be seen also from the statistics. The rural areas are obviously behind e.g. in the amount of Internet connections (Laaja-kaistapalvelut käyttäjän... 2002). Also the division in broadband connections between urban and rural areas is statistically significant. In 2004, 28 % of households in urban areas had a broadband connection. In rural areas the same figure was 8 %. What is alarming the margin has not decreased, but on the contrary became bigger in the last few years. In 2002 the margin between rural and urban areas was only 6 %. In the last two years the number of broadband connections has almost tripled in general. In rural areas, however, the number has only doubled in the last two years. At the same time there is not anymore differences in experienced need for broadband by user between urban and rural areas (Koivumäki and Soronen 2004).

Despite the facts mentioned above, e.g. according to AsPIRE project, there was a clear majority of SMEs in Keski-Suomi region that considered that there was no infrastructure delay at all. There were only a few respondents that thought that the infrastructure delay has caused competitiveness handicaps to either economic development of the region or company itself (Keski-Suomi regional report 2004).

2.6 Barriers of the ICT Utilisation

The obstacles to use and develop ICT-services can be divided to those obstacles originated from the user (e.g. lack of knowledge, time etc.), those originated from the product provider (e.g. services do not meet the needs of users) and to those obstacles which are originated from so called "third part" (e.g. Internet connections in rural areas).

So called anti-Internet users mentioned as the main reason for not using Internet at home that they felt that e-services in a way isolate them from the "real world", from face to face interaction. They also saw e-services as expensive and did not trust the technological safety of the services. They saw that having Internet connection and free access to information networks at home, might give unsupervised bad influences to children. These anti-Internet user groups do not have a lot of experience of Internet and e-services. The answers of "anti-Internet users" clearly reflects the common discussion about weaknesses of Internet (Internetiä käyttämättömät....2003).

This same group was also asked why they do not use those services they mentioned useful in interviews (see chapter 2.4). The reasons are presented in table 2.

Table 2. *The reasons of anti-Internet user groups not to use different kind of e-services.*

The type of e-service	The reason not to use
Banking services	The users do not trust the safety of the services
Information search	lack of language skills (Internet world mostly in English), lack of information search-skills (information is too scattered in web), Internet is seen as too passive service (even if the public services in Internet are seen useful, the actual filling up the forms etc. is still made in offices etc.), the important matters that reflect to users life significantly must be conducted face to face
Use of e-mail (represents communication)	Use of Internet is irregular (e.g. in libraries) and therefore it does not serve well as a communication instrument. Prefer the more traditional ways of communicate (phone, letters etc) Lack of use of e-mail in social environment

Source: Internetiä käyttämättömät....2003

Lack of trust may also be the obstacle of utilising Internet by the SMEs. As shown by the Tiainen et al's study (2004), the brand of the product or e-service provider is thus a central issue. According to this study it also seems that lack of trust has come often from the media, not from entrepreneurs' own experiences. This means that it is usually mass media (press, tv) that make entrepreneurs to think more in depth about issues of e-security.

In Berg et al.'s research in 1999 the SMEs mentioned main obstacles to using Internet in their business operations. 35 % of SMEs mentioned the lack of functional business idea suitable for e-commerce. 34 % mentioned the lack of the skills to use and utilise Internet in company. 30 % were suspicious of profitableness of e-business (based on rumors). The main drags on utilising more Internet the SMEs mentioned in Berg et al.'s research the lack of potential customers and the issues related to trust (industrial espionage, collecting money from the customers, copyright factors, suspicions on trustworthiness of technical solutions). (Berg et al. 1999).

When asked the main obstacles to developing utilisation of Internet in Tietoyhteiskunta 2000+ -researches in 2001, 58 % of the SMEs mentioned lack of capable resources, 52 % mentioned lack of time, 44 % mentioned the risks in data security and 43 % technical problems (incompatible systems). Technical obstacles were mentioned especially in smaller companies. The same obstacles were also highlighted in parallel research by Lahtinen and Roose in 2003.

According to AsPIRE survey one of the most frequently mentioned reasons for the lack of e-commerce initiatives was that the e-commerce was inappropriate for the type of business being operated. Other factors included lack of knowledge and cost of implementation (actually around 60 % of firms in the telephone survey highlighted the lack of ICT training support as a major concern). Many rural SMEs were also satisfied with their current customer base and volume of sales, and saw little need to expand their operations through getting involved in e-commerce. Anyhow, as Grimes notes, the lack of interest in e-commerce should not be confused with a more general appreciation of ICTs because only 7 % of firms interviewed were claiming a lack of relevance in general towards ICTs. (Grimes 2004.)

As a conclusion from the obstacles mentioned above there is a clear need by SMEs to get some current information especially on data security, cost-benefit analysis between different kind of e-solutions and training and knowledge related to utilising Internet. 55 % of SMEs saw that this kind of support could be delivered through Internet (Selvitys pk-yrittysten...2001).

In Tietoyhteiskunta 2000 + -project was also researched the main obstacles SMEs had in utilising public web services (public administration). The results from years 2001 and 2003 are presented in table 3.

Table 3. *Main obstacles SMEs have had in utilising public web services according Tietoyhteiskunta 2000+ -research.*

Obstacle	Year 2001, % of SMEs	Year 2003, % of SMEs
Not enough information of services	60	33
Public services still chattered, SMEs need to send information still separately to different authorities	45	29
Information needed by public authorities are not compatible with companies' other information systems	43	31
Not enough public services /products in Internet	39	23
Using public web services isn't encouraging enough	36	27
Doubts towards the safety of the public services	31	15
Service providers are not familiar with all the aspects needed in SME public administration interactions	29	14
Company is lacking the required skills to use public services	24	12
Company do not have sufficient ICT readiness	19	9
No obstacles	-	29

Sources: Selvitys pk-yrittysten... 2001, Lahtinen M. and Roose K. 2003.

In Ovaskainen and Ritsilä's research the main obstacles for SMEs in starting of e-business were lack of knowledge to develop innovative solutions (planning and implementing) and external experts who were often seen as too expensive (Ovaskainen and Ritsilä 2001).

Lääninhallitus (County Administrative Board of Finland) has listed challenges in developing and sustaining a functional Internet service in their strategy (2004). As the main challenges there were identified: costs for sustaining and updating of the service, time and personal recourses demanded for development work, accessibility of the recourses, compatibility of the current software systems, technical difficulties in knowledge transfer, dependency to other authorities, lack of knowledge and the change needed in working methods. (Lääninhallitusten verkkopalvelustrategia 2004–2007) .

According the Ministry of Finances' research 2003 the most critical things affecting the success of the public Internet service are approval of the customers and benefits to the office in question. To the customers' approval effect e.g. the quality of the service, effectiveness of the service and knowledge and the skills of the entrepreneur and their employees, but most of all the usefulness of the service to the customer. Factors effecting to the benefits of the service to the office in question are e.g. volume of the users of the service, effectiveness of the business operations, cost effective use of time and resources and better possibilities to co-operation with the partners. (Verkkopalvelustrategian vaikuttavuus 2004). According to Tiainen et al (2004) also the trust towards the service and service provider has a significant

role, even more significant than in traditional services, and lack of it can prohibit the use of e-services both by SMEs and individual consumers (Tiainen et al 2004).

In Finland there is a quality management system for public Internet services. It is based on European Foundation for Quality Management EFQM-model. The quality management system consists of three different sectors: operations behind the Internet (quality of the production of the service), operations in Internet (includes the common quality requirements for Internet service) and results (benefits to the customer and provider of the service) The focus in developing of public Internet services will be in the future on e-counselling, interactive communication and advisory systems, which releases experts in the offices to other activities. (Verkkopalvelustrategian vaikuttavuus 2004).

In building new services it should also been noticed that even the number of broadband connections is constantly growing, there still will be SMEs using slow connections for years. Therefore all e-services should not be planned so that they are optimised only to fast and permanently open connections (e.g. Koivumäki and Soronen 2004, Tiainen et al 2004, Rutanen and Matilainen 2001).

2.7 Policy Support and Steering of the Use of ICT in the SMEs

The first Finnish National Strategy for Information Society (suomalainen tietoyhteiskuntastrategia) was drawn up in 1995. After this it has been a part of the national policy programme. The aim of National Information Society Policy is to improve competitiveness and productivity, to promote social and regional equality and to improve citizens' well-being and quality of life through effective use of information and communication technologies and by assuring the wide implementation of ICT techniques in business life, public sector and everyday life. These politics also aim to reduce the negative aspects in changes of society (Tietoyhteiskuntapolitiikan haasteita 2003–2007, Tulevaisuuskatsaus 2003, www.tietoyhteiskunta.fi). The Information Society Programme is one of the Government policy programmes.

In national Programme for Public e-Services (Julkisen hallinnon sähköisen asioinnin toimintaohjelma 2002–2003) it was suggested that all public organisations should prepare a strategy for web services, in which they define the guidelines for developing organisations' web services (Julkisen hallinnon ...2002). Due to this programme in most of governments' offices (ministries, governmental regional units etc.) have been made a state-of-art –surveys and a new strategy to develop their web services in near future has been created. E.g. according to Ministry of Agriculture and Forestry's strategy for web services, in near future there will be 7 different web development programmes related to agriculture, forestry and other resources of nature (Maa- ja metsätalousministeriön...2004).

The main challenges for developing public web services are, that the current services are chattered and organisations have produced information to the services from their own point of view, not so much of the users. The lifetime of the services, estimating the amount of users and the scale of web service should be better planned already at the building phase.

The user statistics are not utilised enough, feedback and information collection and dissemination services do not support web services enough. Also the basic official statistics could be better utilised (Maa- ja metsätalousministeriön...2004).

At the moment there are a lot of different kind of national research groups and political actors in Finland effecting to the development of information society e.g. Consultative Committee of Information Society (tietoyhteiskunta-asiain neuvottelukunta) , information society projects by Sitra (Kärkiverkosto) and Finnish Information Society Development Centre (Tietoyhteiskunnan kehittämiskeskus ry, TIEKE). Also several universities, institutes and private companies operate in the field of ICT development and society interactions (Vuorio and Yli-Viikari 2004). In addition to this, practically all regions and even municipalities have their own strategies for development of information society. Different sectors of industry have as well drawn up their ICT strategies.

The development work in the field of SMEs and ICT has been vivid. Most of the project activity (e.g. approx. 90 % in programme period 1995–1999 and 75 % in programme period 2000–2006) concerning information society projects funded by EAGGF, has been directed on developing agriculture or other entrepreneurship (e.g. marketing, purchasing infrastructure, education directed to entrepreneurship or teleworking). Other development activities in ICT sector in rural areas have been developing the use of ICT in rural villages and communities, developing the use of ICT in public sector and developing information sources for industry specific information (Vuorio and Yli-Viikari 2004).

The results of the programmes have been followed with different kind of evaluation researches. The results of AsPIRE-project indicate quite well the SMEs' opinions about the development efforts in general. According the AsPIRE project more than half of the respondents regarded the local programmes of IT policies as adequate in Keski-Suomi. As for the government interventions, almost all the respondents thought that ICT training availability could be improved. More than half of the respondents thought that improving telecommunications infrastructure, e-government and reducing Internet costs would be good things to do. Almost all of the respondents answered that development agencies could increase the range of training support and assistance and provide practical advice (Grimes 2004, Keski-Suomi Regional Report 2004).

There is a growing acceptance for the need to provide affordable broadband infrastructure as an essential precondition for the promotion of e-commerce and other e-solutions (Grimes 2004). One of the main focuses of Finnish Rural Policy is to provide extensive telecommunication network of fast connections to all around the country, including very remote areas. The aim is to provide fast connections in reasonable price by the year 2007 (Maaseutupoliittinen kokonaisuohjelma 2004). The nationwide telecommunication network is seen as important to rural entrepreneurship as the road network. In a long run the aim is to build such broadband network that can support the current and possible future services. A *sine qua non* for the network is open access, since the broadcasting network does not create new service providers (entrepreneurs) to the rural areas. The building of the telecommunication network is supposed to happen region by region and in those cases

where the needed infrastructure does not develop as market orientated, there is a possibility to use public funds. (Maaseutupoliittinen kokonaisuohjelma 2004).

However, Grimes (2004) states that despite the hype about e-commerce, the generally low levels and significant regional disparities in broadband connectivity throughout Europe indicate that there is still considerable work to be done in terms of infrastructural investment and awareness raising before e-commerce becomes a real option for many rural SMEs. (Grimes 2004.)

Even the infrastructure is one of the main focuses in development of information society in rural areas, policies have shifted a bit by bit away from a technologically determinist and "infrastructuralist" approach to one that places a greater emphasis on soft infrastructures, which relate networking etc. One of the most important issues for rural development policy makers in this area is to ensure that the focus on the new technologies is contextualised within a holistic framework. (Grimes 2004).

3 SMEs and Expert Services in eForm

3.1 The use of Expert Services by SMEs

Expert services can be defined as a trade of knowledge and skills (know-how). The core of the expert service is a piece of advice. Expert services are sought because of the fact that customer (e.g. entrepreneur) is not able to solve the problem without an expert/external information. (Sipilä 1998.)

Business services have important role in economic growth process. Business services' and especially knowledge-oriented business services' (i.e. expert services) significance for SMEs has become more and more important, and there is empirical evidence about the positive influence of business services on the success of SMEs. Increasing demand of the business services and expert services is based on the fact that the operating environment of the SMEs has become more and more complex. In network and information society the business service firms can be seen as a central element in the networking of enterprises. The trends of development connected with SMEs (specialisation, networking, internationalisation etc.) will increase SMEs' need to use these services. Even though the general trend of the use of the expert services in SMEs is upwards, the problem is, as Storhammar (1995, 1996) states, that SMEs are, because of their characteristics a group which needs are difficult to take in consideration in service supply and a group which abilities to use business services are quite deficient.

In his studies Storhammar examined the use of business services in Finnish SMEs. The results show that the factors restricting the use of business services can be found in both demand and supply sides. Both service producers and users considered the prices of services, the lack of information and the indefinite nature of services (which causes difficulties to estimate the benefits of the services) as factors influencing and restricting the use of services. The results of the study indicate that the central means to improve possibilities of using services in SMEs are training of entrepreneurs, the mediation of real information about business services and well-considered subvention of services. (Storhammar 1995, 1996.)

One major problem is, from the rural point of view, that the business services' suppliers have mainly been located in central areas of Finland. That has meant a 'vicious circle' for peripheral areas: low demand and use of services have caused that business services' suppliers have not been located in rural areas, on the other hand, without supply the demand situation won't get better. (Storhammar 1995.)

The solving of business problems is often related to knowledge and experience of the person who is making decisions in SME (usually the director/owner). Primarily SMEs trust their own knowledge. If they find it inadequate, they search for external help. Entrepreneurs use external experts when there is not enough time or own capability, and when it is cheaper and possible to use those experts (Saapunki 2002). It is found out that the rural SMEs use less expert services in their innovation processes than urban ones (Storhammar and Virkkala 2003).

Saapunki (2002) in his research states that the decision to get external consulting is based on the management's attitudes and images towards external services, information needs found out by experience, business problems related to personal know-how and background and service needs of external partners of the companies.

Typically the business problems in which the SMEs use external experts to seek for information are as follows:

- legal information (agreements, labour related matters)
- regulations, decisions and interpretations related to taxation
- regulations and directions given by authorities and other organisations related to SMEs
- financial management
- strategic development of business. (Saapunki 2002.)

Many national researches (see e.g. Lähdesmäki et al 2003, Matilainen and Aro 2002, Rutanen and Matilainen 2001, Rutanen and Luostarinen 2000) have indicated that one of the main need for external information in rural micro companies and SMEs is the need for objective marketing and customer information. In a study concerning the marketing of food SMEs, it was stated that in order to be successful in competition, food SMEs have to know more about the markets and the consumers to which the products are aimed for. Reliable and specific information about the markets is needed, in order to find the market gaps. Anyhow, acquisition of market information was considered laborious and expensive by the entrepreneurs. That is also one of the reasons why these food SMEs concentrate more on production than marketing. (Lähdesmäki et al. 2003.)

There are basically two types of rural enterprises as for the business and marketing strategies: there are enterprises which are selling their products and services locally whereas the others' business is based on expansive strategy either independently or as a part of a production chain (Maaseutupoliittinen... 2004). Lähdesmäki et al. (2003) points out that even though the enterprise's strategy is not expansive, it has to adapt to changes of operational environment in order to keep up with competitors. Therefore marketing and the use of market information should be an essential part of all entrepreneurship.

3.2 Description of Existing e- and Other Expert Services

Storhammar (1995) makes a difference between standardised "basic" business services (e.g. technical services like cleaning, repairing etc.) and knowledge-oriented business services' (i.e. expert services). Typical for expert services is their individual and communicative nature and often they are based on counselling and education.

The nature of the expert services varies a lot depending on the business problem at hand. In Finland there are various different public and private organisations offering expert services. In addition to this, there are also several development projects offering these services as

well. The role and tradition of public expert and advisory service system in delivering external information/know-how to the SMEs is strong

One example of expert services is anticipation. The use of the anticipation in SMEs can help them in their future works as a part of the strategic leadership and planning. In general, SMEs are interested in anticipation but their time and human resources are often limited. Therefore they have to come up with these expert services outside the firm. (Mannermaa et al. 2000.) E.g. Employment and Economic Development Centres have developed anticipation systems, and there is in many of those Centres a person specialised in anticipation. These services (scenarios, barometers, market analyses etc.) can also be obtained in Internet.

E-expert services are web services offered to citizens, enterprises, communities and governmental units. Those services can extend from search of information to interactive services. Many of those web services are mainly based on the existing expert services (e.g. see above anticipation services). There are also some exclusively web-based services.

The list of existing significant national expert service suppliers and e-expert services is presented in appendix 1. The focus there is on e-business services and also services directed to nature based enterprises.

E-expert services are offered in the Internet but there can be "m-expert services" as well. E.g. weather forecasts or forecasts concerning agriculture related diseases or pests are mediated into the mobile telephone. Third generation mobile phones enable in future new kind of m-expert services. Anyhow, in a study dated from 2001, enterprises did not yet consider mobile solutions as interesting (Selvitys pk-yritysten...2001). The same trend was still strong according to the results of Tiainen et al's research in 2004.

3.3 SMEs as Customers of e- and Other Expert Services

In Storhammar's study was reported that in 1996 approximately 40 % of enterprises had not used any expert services. The use of the private sector business services as a whole was more common than public sector services. The most used private business services were, according to the study, so called basic business services like accounting, transportation, technical services (e.g. cleaning, repairing) and occupational health services. In another research from 1995 was reported that most used expert services were related to financing, taxation and jurisprudence (Boedeker, M. at al. 1995). Anyhow, it can be assumed that nowadays the use of the expert services is higher.

After Finland joined in EU 1995, there have been a lot of different kind of EU-funded development projects offering expert services especially to the rural SMEs. Since the services have been partly funded by public funds and the cost for SMEs have been minimal, they have been very competitive. This has caused some problems e.g. to the private consultancy sector competing for the same customers. Also this has influence to SMEs attitude (reluctance) toward chargeable services, since they have used to get the services practically free of charge.

Expert services are mainly used when starting a new business or when looking for placement. As for the rural enterprises, the most used expert services concerning entrepreneurship are offered by municipalities (e.g. trade promoter) or by Employment and Economic Development Centres. Rural entrepreneurs were mainly satisfied with the services offered by Rural Advisory Centres, trade promoter of municipality and by Employment and Economic Development Centres (services for farming and fisheries). The most satisfied the entrepreneurs were with the services of Rural Advisory Centres, regardless the fact that these public services are chargeable. (Rissanen et al. 2001.)

In relation to company size, it can be said on the grounds of the Storhammar's study that the smallest firms (micro firms) hardly use the business (and expert) services. That is because of the fact that often those firms are run by less educated owners who count on their own work experience. On the other hand, those firms are not, in many cases, expansive in their nature. The use of the business services is minimal also in such firms whose way of actions is traditional and who are subcontractors. (Storhammar 1996.)

The Helsinki Chamber of Commerce started a three year Information society 2000+ -project in 2001 in which the aim was to encourage SMEs to exploit ICT more as an integral part of their business operations. About 40 % of the respondents of the study needed more information about e-business, e-expert services and service suppliers. Internet was considered to be the most reasonable way to get information concerning e-business. According to the study, firms' representatives were mainly interested in e-business related issues like:

- Security
- Cost-benefit analyses of the e-business
- Education
- E-accounting. (Selvitys pk-yrittysten...2001.)

3.4 Attitudes Towards, Images of and Trust to the Expert Services

According to Storhammar's study (1996) the experiences concerning the use of business services were relatively positive. Appraisals about private services were a little bit better than those of public services. (Storhammar 1996.) It has been also noticed in Rissanen et al.'s research that nevertheless, the chargeability increases the appreciation of the service (Rissanen et al. 2001).

The results of the Storhammar's study show that successful service (i.e. entrepreneur is satisfied with the service) is often anchored to some other development activity of the enterprise, and business service supplier is often familiar to the entrepreneur. It is important that the service won't be unconnected to the other development activities of the enterprise. The activity of the enterprise and co-operation (interaction/interplay) between business service supplier and enterprise is something that forecast the success of the service. It has to be stated that the success of the service depends in the end on the customer (i.e. enterprise

that uses the service) and how the customer is taken advantage of the service. Finally, it is not the proficiency or expertise that is enough to make a good business service but the ability to co-operate and trustworthiness. (Storhammar 1996, see also Sipilä 1998.)

According to Tiainen et. al. (2004) the trust towards an Internet service is one of the main issues effecting to the use of service in question. The trust can be divided in different components: competence, benevolence and integrity of the service and service provider (user's opinion on these). Also social environment of the entrepreneur and entrepreneur's opinion on him/herself as an user of e-services influence to the experience of trust and therefore to the using activity of the services. (Tiainen et al 2004).

As it was stated in chapter 2.2. concerning the use of ICT, the demand and use of the business services in SMEs is, as well, affected by the entrepreneurs' attitudes, abilities, experiences, the strategy and the prevailing operation models (enterprise culture) of the enterprise and the development needs at that moment. Sometimes it is difficult in SMEs to become aware of the actual needs because of informational limitations and attitudes. (Storhammar 1996.)

Ruuskanen (1999) states in his study that instead of expansion of business, rural entrepreneurs value things related to way of living like self-sufficiency, autonomy, family, environment etc. (Ruuskanen 1999). This might reverberate to the use of expert services and partly explain the low use of expert services in micro enterprises.

3.5 SME Perspective to Developing Expert Services

The main reason to use expert services is to maintain the competitiveness. As mentioned earlier in chapter 2., SMEs in rural areas face very considerable challenges in seeking to ensure that they can exploit the potential benefits presented by the new technologies and in this case e-expert services.

As obstacles for using public e-services were seen by the entrepreneurs that there is not enough information about those services, there are not enough services offered or the use is not prodded enough. (Selvitys pk-yritysten...2001). According to Petäjä and Varamäki (2003) the major reason for not to use expert services is absence of suitable services, not the price of the services.

Even though the step into the e-business is seen as natural development and the attitudes towards e-business are quite positive, there are other factors that are hindering the development of e-business and the use of e-expert services. On a general level it seems that the effective use of time (limited time resources) is a constant challenge for entrepreneurs (Virtanen & Keskinen 2000, Valjakka, forthcoming). Therefore the services have to be user-friendly and time-saving.

Already in late 1980's it was noticed that the services should be more like active counselling than just information (Alén 1987). In a research dated from 1994 it was stated that it is not clear for SMEs which of the services were public and which not. Also the abilities to exploit the information were limited or the information can be in such form that it can not be exploited in SMEs. When information is needed the source was too difficult to find and searching for information often wastes enterprises' resources (time). (<http://www.pkt.fi/news/webnahat/web401/heli.htm>)

Concerning development of web-services in forestry it was stated that in principle public services could be moved into the Internet immediately. Anyhow, the representatives of the organisations saw that the services between organisations in the sector should be developed first and after this the services to the forest owners. There should be better information transfer between organisations (i.e. joint service "packages" in Internet), advisory services, and at least work orders could be submitted in Internet. The main reasons for developing the web-services are: cost efficiency, time-saving, cutting off needless bureaucracy and development of new service models. However, there is a risk that in that case some of the forest owners could become too isolated from advisory organisations. (Sivula 2004.)

According to Rutanen and Matilainen (2001), the most important tasks for Internet service for nature-based entrepreneurs (NBEs) are information on products, services and entrepreneurs. Also the special emphasis was given to information on different kind of actors in NBE sector. The user groups saw that the information provided in the service should be especially tailored for the use of NBEs and detailed enough (Rutanen and Matilainen 2001).

One problem for SMEs is also to get objective and neutral information about ICT providers and products. In addition to technical information targeted to ICT-personnel, the companies need information on macro influences of e-business to see the current and future trends in utilising Internet. The companies need information on total packages in e-use in business operations, not just individual products. A suitable form to disseminate information would be e.g. examples among equal circumstances. (Selvitys pk-yrittysten...2001).

According to Saapunki's research there are three areas where web services are mainly needed:

- i) Services that help having business with authorities
 - basically known and anticipated
 - main challenge: customer driven marketing and fluent service process (experts opinion)
 - ii) Services that help developing business
 - tightly related to customer segment (field of industry, development phase of company, division of business operations)
 - on one hand a need to produce comprehensive services is emphasised, on the other hand services can be very strictly focused
 - e.g. information on different kind of development "directions", virtual development environments and note lists, that help e.g. updating business plans
-

-
- iii) Specially tailored services into individual needs
- aim to provide help to unique and acute business problems
 - to utilise these web services customer has to be able to diagnose the situation and the needs for further information
 - e.g. question-answer - services, updated objective information, so called comparison information on e.g. rents, salary levels, trends etc., online-advisory services
 - information services (statistics, databases, link lists). (Saapunki 2002.)

Experts working in direct advisory services placed great emphasis on problem based approach of expert services. In the research made by Saapunki (2002) it is presented, that the three main web service unities offered to entrepreneurs should be:

- information service (including information and information search systems to help decision making in companies)
- on-line service to help solving acute problems and offering opportunity to discussion and learning
- service including public forms necessary to submit to different kind of authorities by entrepreneur + the supporting help to filling up the forms. (Saapunki 2002.)

The expected content of web services depends on customers' previous personal experiences, expectations made by communication/marketing and personal and acute needs. Through communication/marketing it is possible to influence the entrepreneurs expectations. (Saapunki 2002). And as in all marketing, the better the expected content equals experiences, the fewer disappointments there will be, which may have influence on the use of the services.

The supply of expert services is to some extent prejudiced by the competition between public and private sectors. It is impossible for private sector to compete with charge-free services offered by public sector. On the other hand, entrepreneurs have got used to that Internet services are free of charge. Public services should be directed to supply basic information affordable to everyone and services offered by private sector should be more like tailored. The role of the public sector was seen e.g. in Storhammar's (1996) research to act as an intermediary and to enhance SMEs' abilities to use business services. In addition to tailored information (e.g. market analysis etc.) there should be practical training for utilising the information (Lähdesmäki et al. 2003).

As mentioned earlier, it is also important to inform about the services. To distinguish from other web services and portals the service should be a "brand". Also the brand/imago of the product provider is vitally important, maybe even more than in traditional services. This necessitates productisation of services and in that case the attention should be paid on following themes:

- availability
 - quality
 - tailoring
-

- resources (technical, human)
- substance of marketing (expectations)
- trustworthy image. (Saapunki 2002.)

In entrepreneurs' opinion the services that help having business with authorities (i.e. regulations concerning entrepreneurship, laws, directions of authorities etc.) should be in such a form that they are easy to understand and easy to use. Services offered by different authorities should be centralised in some way and there should be an interactive and specialised question-answer –service. There should also be a wide link list with explanations, information channel of future trends and especially clear basic information on business development, taxation and subsidies. Web service must also aim to help in enterprises' every day activities, and first of all, there should be somewhere information about the service itself. (Saapunki 2002, see also Tiainen et al 2004)

4 ICT Know-How of the SMEs – The Current Level of ICT Skills and Challenges in the Development of Knowledge of SMEs

The requirements for the ICT skills and knowledge of rural entrepreneurs are even bigger than those of larger companies. In a small rural company there are not hired specialists who are responsible e.g. for ICT development of the company. In many cases the entrepreneur him/herself has to be the expert in many sectors of business, including ICT (MTK 2002).

The ICT skills of SMEs have been improved significantly during the last few years. To utilising ICT-technologies in their business operations the SMEs must have at least the basic knowledge concerning the new ICT-technology. However, still e.g. according to Viitaharju and Lähdesmäki's research the main reason for not using e-mail was, that it was recently acquired, and nobody in the business was able to use it (Viitaharju and Lähdesmäki 2002). There are still significant deficiencies in basic ICT skills. The data gathered and analysed in AsPIRE project also suggests that the first step in developing more tailored programmes of the ICT development, e-commerce etc. is the provision of very basic IT training. (Grimes 2004)

The need for ICT skill improvement is very common in rural areas and in many researches seen as the most important sector of education needed by SMEs and farmers (e.g MTK 2002, Pk-yritysten koulutustarvebarometri 2003, Tuomaala and Bläuer 1998). In rural tourism sector the special focus has also been in improving SMEs' skills to utilise electric booking systems (Visanti 2003).

At today's SMEs and in information society as a whole, the basic ICT skills are part of the all-around education. They are essential to all successful entrepreneurs (MTK 2002). Therefore the public sector has put a lot of effort on basic ICT skills education of rural SMEs. Adequate ICT skills are also required for guaranteeing equal development of information society. Many projects in ICT sector are concentrating on to basic education of ICT skills. Especially successful has been the use of a local peer group or an other entrepreneur as an educator (Vuorio and Yli-Viikari 2004, MTK 2002, Rissanen et al. 2001). This gives possibility to organise the education nearby the actual business and the education is well tailored to the customers needs. An "equal" teacher is also easier to approach afterwards. The entrepreneurs need support for using ICT-technologies also after actual educational course. These methods mentioned before guarantee better the continuing of support to the entrepreneur also after development project or educational course (Vuorio and Yli-Viikari 2004). Also it has been noticed that entrepreneurs are not likely to tell about their difficulties to authorities, they can even diminish them (Rissanen et al. 2001).

Other aspects to the education related to ICT are the entrepreneurs' skills to the knowledge management and the capability of critical reading. (Vuorio and Yli-Viikari 2004). It has been proposed that the focus of the education should be transferred to information acquiring skills and managing, controlling and "filtering" the information (MTK 2002).

At the moment there are lots of different kind of education to entrepreneurs in Finland. The variation and wide range of courses has been seen rather positive than negative. The biggest methodological shortages have been:

- I) the business operations have been demerged in too small units. There should be a comprehensive aspect as well
 - II) in education the rational aspect is emphasised. There is very little room for opportunism which is a needed skill in entrepreneurs' everyday life
 - III) the education is too formulaic, entrepreneurs are however individuals
 - IV) interaction between experts and entrepreneurs does not work
 - V) technologies are not emphasised in business concepts. Even if the company itself do not operate in the field of high technologies, new technologies and capability to see future opportunities are needed in every company.
- (Koiranen and Peltonen 1995.)

Characteristic for rural SMEs is that concerning ICT skills the level of current knowledge is very diverse. The situation is the same with the other educational needs. The educational/knowledge needs vary a lot even among rural companies. Therefore it is impossible to plan universally applicable educational courses or teaching methods for rural SMEs (MTK 2002).

It has been noticed, that there has not been enough emphasis in education and information transfer methods during the last few years. The methods, however, are in a very important role in learning processes and therefore there should be much more emphasis on them. The most effective method for SME training has been learning by doing, especially when the learning process has been closely connected to everyday business operations of the company in question (MTK 2002). Utilising ICT also brings changes to the customised way of everyday working (working culture) both to the entrepreneurs and advisors (Lääninhallitusten verkkopalvelustrategia 2004–2007). One of the main challenges, also educational, for the future is, how to bring ICT as a natural part of entrepreneurs' every day life, after the basic skills are gained. That is also a significant factor effecting to the successfulness of the different kind of e-services (e.g. Lääninhallitusten verkkopalvelustrategia 2004–2007).

5 Conclusions

In general, most of Finnish rural SMEs have not yet realised all the potential benefits offered by Internet services, and the use of Internet is not yet seen as a part of business culture. At the moment SMEs use mainly more or less obligatory public external expert services (e.g. tax authorities). However, utilising widely external expert services also e.g. in companies' strategic planning process, might benefit especially the small rural SMEs. They do not have possibilities either to hire new skilful staff for different business operations. Offering expert services in e-form may promote the use of external experts in remote rural SMEs, though the SMEs see that the accessibility of the services is not sufficient at the moment, products are not customer orientated enough and a better support system is needed.

However, before e-expert services can be fully utilised, there are more than just technical problems to solve. The main problems seem to be in knowledge management and utilisation of the external knowledge/information in business actions in general. This necessitates new way of thinking also from the entrepreneurs and highlights the importance of entrepreneurs' capability to apply the information to his/hers own business actions. Some entrepreneurs are able to apply general information to their own businesses, but for others the role of some kind of human interpreter, e.g. advisor is essential. Before making improvement suggestions to the e-expert services, it is necessary to understand better, in what kind of situations SMEs decide to seek external information, how it is obtained, through what channels and how systematically it is collected. Also the SMEs' different kind of strategies and phases in their lifecycle influence to the need of external information.

At the moment in Finland, there are more or less infrastructure, recourses (e.g. project funding) and even education needed available for the further adaptation of ICT technologies in rural SMEs. One of the main obstacles is the lack of ICT culture in SMEs (i.e. use of ICT as a natural part of everyday business operations and business strategies). The development of new ICT tools has been very rapid, but the business culture has not been able to keep track of technological development. Understanding this process and it's mechanisms is essential, when enhancing the use of e-expert services is concerned. Changing the working culture of SMEs can be a slow process and needs some more support activities than just new Internet tools.

Sustainability of the e-services is one of the main challenges. SMEs are used to pay very marginal fees for expert services in general and are also used to that most of the services delivered via Internet are free. At the same time, the using activity of e-services, especially in rural SMEs, is relatively low. The main reason is indicated to be the lack of knowledge that these kind of services exist, but it can be speculated whether this is the real reason or just an convenient excuse. However, the continuously busy schedule of the entrepreneurs and advisors forces them to look for the more time saving solutions for different business actions. In that regard, the benefits of ICT solutions are maybe not yet thoroughly realised in the rural SMEs. They are not sure, what the actual concrete benefits might be. This comes evident e.g. in research results where SMEs would like to have more objective information on ICT solutions.

The attitudes towards external assistance in general and the imago of the service provider are the key factors influencing to the use of e-services. Usually for SMEs it is the easiest to adapt e-services of those service providers, that have provided them services through more traditional delivery channels in the past. These service providers already have the reliable imago in the eyes of SMEs. This kind of process has been going on in Finland e.g. concerning public e-services.

These issues mentioned above will be addressed in following phases of Research Work Package (WP3) in RuBIES project. Also Technology Watch–part of the project aims to find out solutions to these issues.

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APPENDIX 1. A list of e-Expert Services in Finland

In following list there are descriptions of different kind of nation wide e-expert services/ service portals targeted to SMEs in general and providing sector specific information for diversified farms and nature-based entrepreneurs in Finland. The list is not in order of importance. After each service there is a short description of the service and the information and services it provides.

A. General business services

Uusyrityskeskus (*Jobs and Society*)

- www.uusyrityskeskus.fi
- Information and counselling for starting entrepreneurs
- Informative
- Charge-free, no registration required
- Public

Jatkajat.fi

- www.jatkajat.fi
- Served by Jobs and Society
- Services for those starting new business or looking for continuator
- Charge-free, registration required

Pellervo-seura (*Pellervo Confederation of Finnish Cooperatives*)

- www.pellervo.fi/
- Pellervo operates as a service organisation for Finnish cooperatives. It is a forum for cooperative activities, an organisation of expertise for the cooperative activities, an organisation dedicated to development and a national and international actor and promotor of members' interests.
- Informative, information about legal services, publications, events etc.
- Charge-free, no registration required.

Yritys- ja yhteisötietojärjestelmä Ytj (*Finnish Business Information System, BIS*)

- www.ytj.fi
- The Business Information System BIS is a joint service for enterprises and communities that transact with the Finnish Trade Register, Foundations Register or Tax Administration.
- For entrepreneurs, offers information on enterprises (e.g. taxation etc.)
- Informative

PKT-säätiö (*SME Foundation*)

- www.pkt.fi
 - The Foundation is a privately owned and enjoys government financing.
 - SME Foundation improves the operating conditions of SMEs in terms of the business management. SME Foundation develops and promotes business management skills, principally for small and medium sized enterprises
-

- Informative, (e.g. Consultant Database, publications)
- Registration needed.

Finnvera (*Finnvera plc*)

- www.finnvera.fi
- For new enterprises.
- Finnvera plc is a specialised financing company offering financing services to promote the domestic operations of Finnish businesses and to further exports and internationalisation of enterprises. Finnvera is owned by the Finnish state.
- Informative
- Public
- Charge-free, no registration required

Yritysuomi (*Enterprise Finland*)

- www.yrityssuomi.fi
- Part of Yritysuomi, Enterprise Finland is a service package aimed at foreigners and immigrants. Yritysuomi (available in Finnish and in Swedish) is a public online service and portal for enterprises, entrepreneurs and future entrepreneurs. It provides access to a comprehensive range of public services, providing assistance in issues such as setting up a business, growth and development measures and international business activities.
- Enterprise Finland contains information on the following: establishing business, public special funding, accounting, taxation and audit, employer obligations and the rules of working life.
- The Links drop-down menu contains a list of other authorities offering services to enterprises and sources of entrepreneurial information.
- Public
- Charge-free, no registration required

VTT (*VTT Technical Research Centre of Finland*)

- www.vtt.fi
- VTT provides a wide range of technology and applied research services for its clients, private companies, institutions and the public sector. VTT actively enhances the global competitiveness of industry and other business sectors.
- Information about various services: e.g. training in the use of online and Internet information resources as well as publishing (mostly in Finnish).
- VTT Information Service disseminates scientific, technical and techno-economic information and promotes the development of information services.
- Information about services is charge-free, no registration required.

Suomen yrittäjien työttömyyskassa (*Unemployment Benefit Society of the Finnish Entrepreneurs*)

- www.syt.fi
 - Information about the society.
 - Charge-free, no registration required
-

Suomi.fi julkishallinnon verkkopalvelut (*Suomi.fi portal for public sector services*)

- www.suomi.fi/suomi/tyo_ja_yrittaminen/yrittaminen
- Suomi.fi is the portal for public sector services in Finland. The portal contains information relevant to everyday life collected in different subject areas.
- Suomi.fi portal is based in the Government Information Management Unit in the Ministry of Finance. The team is responsible for ensuring that the text and links are kept up to date. Each of the authorities, organisations and bodies producing material for the site is responsible for the accuracy of its own information.
- Informative, Internet links.
- Public
- Charge-free, no registration required

Yrityspalvelu Ensimetri (*Advisory Services for New Business Enterprises*)

- www.ensimetri.fi
- Informative, information about starting a business
- Links concerning rural entrepreneurship.
- Charge-free, no registration

Maaseutuyrittäjyyden edistämiskeskus MAEK (*Institute for Rural Entrepreneurship*)

- www.uusyrittajakeskus.fi/MAEK
- For rural entrepreneurs
- Informative, information about entrepreneurship and starting a business.
- Charge-free, no registration

Maa- ja kotitalousnaiset (*Rural Women's Advisory Organisation*)

- www.maajakotitalousnaiset.fi
- Rural Women's Advisory Organisation is a nation wide organisation for advice directed at households and consumers, promotion of landscape management and small enterprises in rural areas.
- Informative
- Charge-free, no registration

Maaseutu Plus, maaseudun kehittämisportaali (*The Village Action Association of Finland*)

- www.maaseutuplus.net
 - Information about village action and rural development in Finland. The Village Action Association of Finland (Suomen Kylätoiminta ry or SYTY) promotes village action and locally initiated rural development on the national level.
 - Charge-free, no registration
-

Carrefour-verkosto – Maaseudun EU-tietokeskukset (*Carrefour network*)

- www.carre4.net
- The objective of the Carrefour network is to bring information about the EU to the very heart of rural communities. They offer information about the European Union, EU funding, projects and transnational cooperation. The Carrefour acts as a meeting point and a discussion forum.
- Informative, EU-links etc.
- Charge-free, no registration

Maaseutupolitiikan yhteistyöryhmä (*Rural Policy Committee*)

- www.maaseutupolitiikka.fi
- Information about rural policy in Finland
- Informative
- Public
- Charge-free, no registration

Eläköön maaseutu!

- www.lande2000.fi
- Administrator: Ministry of Agriculture and Forestry
- Information about EU programmes and projects in programming period 2000–2006
- Informative
- Public
- Charge-free, no registration

Maa- ja metsätalousministeriö (*Ministry of Agriculture and Forestry*)

- www.mmm.fi
- Information about the Ministry of Agriculture and Forestry: organisation, agriculture and countryside, veterinary services and control of foodstuff, forestry, fisheries, game management, natural and water resources and land survey.
- E.g. e-forms concerning agriculture and rural development <http://lomake.mmm.fi>
- E.g. information about fishing (permissions) and possibility to pay permission in Internet www.mmm.fi/kalastus/luvat
- Public
- Charge-free, no registration

Maa- ja metsätalousministeriön tietopalvelukeskus TIKE (*The Information Centre of the Ministry of Agriculture and Forestry*)

- <http://tike.mmm.fi>
 - Information (e.g. statistics concerning rural areas, farming etc.) for officials, researchers etc.
 - Public
 - Charge-free (partially), no registration
-

Maaseudun sivistysliitto (*the Federation of Rural Culture and Education*)

- www.msl.fi
- Information on educational opportunities for rural areas
- Informative
- Charge-free, no registration

TE-keskus (*Employment and Economic Development Centre*)

- www.te-keskus.fi
- Information on services concerning entrepreneurship, labour, farming, fisheries
- Includes "Verkkokaveri" -Internet service www.verkkokaveri.fi, which offers e.g. handbooks and links for entrepreneurs.
- Public
- Charge-free, no registration

Suomen 4H-liitto ry (*The Finnish 4H Federation*)

- www.4h-liitto.fi
- The Finnish 4H Federation is a counselling organisation teaching practical skills to young people. The 4H programme supports secondary school education by teaching manual skills and by encouraging young people to start their own projects.
- Informative, information on federation
- Charge-free, no registration needed

Oikeusministeriö (*Ministry of Justice, Finland*)

- www.om.fi
- Informative
- Public
- Charge-free, no registration needed

Valtion säädöstietopankki – Finlex (*FINLEX Data Bank of Legislation*)

- www.finlex.fi
- The new FINLEX Data Bank of legislation is an information system available free-of-charge on the Internet
- Charge-free, no registration needed
- public

Veronmaksajain keskusliitto (*Taxpayers Association of Finland TAF*)

- www.veronmaksajat.fi
 - The Taxpayers' Association of Finland (Veronmaksajat) is an organisation representing both individual as well as company taxpayers.
 - The Association's fifteen tax lawyers can be consulted by members in tax questions.
 - The Association publishes magazines Taloustaito and Taloustaito yritys. Its other publications are Verouutiset, TaxFax (a bulletin sent by e-mail) and many books about taxation and taxes.
 - Charge-free, no registration needed
-

Verohallinto (Tax Administration)

- www.vero.fi
- On those pages you can find forms and publications concerning taxation
- Charge-free, no registration needed

Patentti- ja rekisterihallitus (National Board of Patents and Registration of Finland)

- www.prh.fi
- The National Board of Patents and Registration (NBPR) serves independently of time and location in information networks.
- Library, free databases of the National Board of Patents and Registration: Business Information System, is an information service that contains contact and identification information on Finnish businesses, basic information on associations registered in Finland, basic information and pictures of domestic pending applications for a design registration, valid design registrations and designs deleted from register etc.
- Databases of industrial property, different technical fields, business life and jurisprudence. The information service is liable to charge. Orders can be made by telephone, post, fax or e-mail.
- Information about training services.
- no registration needed

Suomen standardisoimisliitto SFS ry (Finnish Standards Association)

- www.sfs.fi
- Information concerning standards and standardization.
- Search for standards, e-market for standards
- no registration needed

TietoEnator

- www.tietoerator.fi
- Information technology services
- Information of services, wide variety of on-line -services
- no registration needed

Bluebook-yrittysrekisterit

- www.bluebook.fi
 - Blue Book is a leading business contact and marketing information provider in Finland. Blue Book's systematic company database offers coverage across the Finnish business field and includes more than 200 000 companies with over 300 000 decision makers.
 - Products: Salesleads and WebSalesleads are marketing databases designed for planning and creating target groups, implementing b-to-b campaigns and updating customer information. Salesleads can also be used as a database for CRM-systems. Wide range of criteria and various printing possibilities enable outlining the required target.
 - WebSalesleads is in English and charge-free. Registration is needed
-

Suomen Asiakastieto

- <http://www.asiakastieto.fi>
- Leading business and credit information company in Finland, owned by the Finnish trade and industry. Provides companies with information and benefits at all stages of the business relationship. In Asiakastieto's services, these are Targeting, Decision-making and Monitoring. Asiakastieto's company information database is the largest in Finland.
- Information for companies and for consumers.
- Open business information and information for contractual clients.
- Service selector

Suomen Yrittäjät (*Federation of Finnish Enterprises*)

- www.yrittajat.fi
- The Federation of Finnish Enterprises is the largest central business organization in Finland. Out of all interest groups the Federation of Finnish Enterprises covers small- and medium sized enterprises most extensively.
- Advisory services are offered to the members on corporate taxation, corporate law, labour legislation, business financing, contract law, patents, internationalization, social security of entrepreneurs etc.
- Informative, information about services, for young entrepreneurs
- Electronic marketplace for selling and buying enterprises.
- Partly open for all, some parts need registration

Naisyrittäjyyskeskus ry (*Women's Enterprise Agency*)

- www.naisyrittajyyskeskus.fi
- The Women's Enterprise Agency, works to promote entrepreneurship and networking among newly started entrepreneurs. It is one of the Finnish Jobs and Society Enterprise Agencies and is financed by the European Social Fund, the Finnish Ministry of Trade and Industry, and the Finnish Ministry of Education as well as by private enterprises and business organisations.
- The Women's Enterprise Agency provides information on the procedure for starting an enterprise, individual advice, information on the different practical aspects of entrepreneurship, entrepreneurial training courses, training for business consultants.
- Informative, information about services.
- Charge-free, no registration needed

Yrittäjänäisten keskusliitto ry (*The Central Association of Women Entrepreneurs*)

- www.yrittajanaiset.fi
 - The Central Association of Women Entrepreneurs in Finland is an organisation looking after the interest of women entrepreneurs in operational, business and social issues.
 - Informative, information about services, activities etc.
 - Event calendar, chat
-

Kauppa- ja teollisuusministeriö (*Ministry of Trade and Industries*)

- www.ktm.fi
- Information about markets, entrepreneurship, Finnish industries
- Public
- Charge-free, no registration needed

Fintra

- www.fintra.fi
- FINTRA is Finland's leading trainer in international business management. Specializes in training services, creating tailor-made concepts to meet the development needs of companies and individuals in an increasingly global business environment.
- Training focuses on management and leadership, sales and marketing, communication skills and international business operations.
- Informative, information about training
- Charge-free, no registration needed

Finpro

- www.finpro.fi
- FINPRO provides services, support and information to help Finnish companies enter the international market as swiftly, safely and efficiently as possible.
- Pages for visitors and registered clients. Registration is free of charge.
- Online services for enterprises, chat
- Information about counselling services.

Tilastokeskus (*Statistics Finland*)

- www.stat.fi
- Wide variety of statistics. (e.g. Finland in figures)
- StatFin online -services.
- Some of the online -services are chargeable (publications, business registers etc.) Basic services are free of charges.
- WebStat is a database of statistical sources available via the Internet. The material is classified by subject field and by country.
- no registration needed

Talouselämä (*Talouselämä e-newspaper*)

- www.talouselama.fi
- Information of business. Search for business analyses.
- Chat forum, registration needed

Kauppalehti (*Kauppalehti e-newspaper*)

- www.kauppalehti.fi
 - Information of current topics of economy
 - Chat forum, registration needed
-

Eurooppa-tiedotus (Europe Information, Ministry of Foreign Affairs)

- <http://www.eurooppa-tiedotus.fi/fi/>
- Information about European Union
- Public
- Charge-free, no registration

Oppisopimus.net

- www.oppisopimus.net
- For employers and students
- Informative, information about apprenticeship contracts, chat forum
- Charge-free, no registration

Kauppakamari (*The Central Chamber of Commerce*)

- www.kauppakamari.fi
- The Central Chamber of Commerce of Finland and 21 regional chambers of commerce make up the Finnish chamber of commerce organization. Together it monitors the joint interests of all enterprise and strives to improve the climate for business, regionally, nationally and in the European Union. It aims to make Finland an attractive corporate location.
- Informative, information of services.
- Economic reports
- Information about the guide for new entrepreneurs
- Charge-free, no registration needed.

Yrittäjän tietopankki (*The Database for Entrepreneurs*)

- www.yrittajantietopankki.com
- Information about starting and running the business.
- Forms and links concerning entrepreneurship.
- Charge-free, no registration needed.

Sofor Oy

- www.sofor.fi
- Sofor Oy produces software solutions to help companies make their business operations more efficient, streamline operations and increase added value in their core business areas.
- Information about services.

Osuuspankin aloittavan yrittäjän tietopankki (*The Databank for New Entrepreneurs*)

- https://www.osuuspankki.fi/templates/alaosio_yksink.asp?path=14427;15233
 - Informative, information for new entrepreneurs.
 - Charge-free, no registration needed.
-

LEL -työeläkekassa (LEL Employment Pension Fund)

- www.etera.fi
- Informative, information about services (insurances).
- Charge-free, registration needed to some services.

Pk-yritysten riskienhallinta (The SME Risk Management Toolkit)

- <http://pkrh.vtt.fi>
- Provides information and many tools in Internet for SMEs interested in risk management. Quickly accessible, this extensive Toolkit offers practical assistance for many risk management needs.
- Charge-free, no registration needed.

Sähköisen kaupankäynnin aapinen (The Primer of e-Commerce for SMEs)

- www.tieke.fi/kauppa/aapinen
- Information about the "ABC-book" of e-commerce for SMEs.
- Informative.
- Registration needed to get into mailing lists concerning e-commerce.

Ideoita yrittämiseen (Uranus.fi)

- www.uranus.fi/yrittajyys
- Uranus is a Finnish, privately-owned and web-based service. The aim is to meet the needs of both international and Finnish jobseekers and employers by providing job opportunities, contacts and information from different aspects around worklife.
- Informative, articles about entrepreneurship, chat forums
- CV-forums etc.

Keskitetty Internet-palvelu yrityksille (One Stop Internet Shop for Business)

- <http://europa.eu.int/business/fi/index.html>
 - One Stop Internet Shop for Business brings together data, information and advice from many sources. It is part of the European Commission's "Dialogue with Business", a new service to help the entrepreneurs to make the best of the Internal Market.
 - Public
 - Charge-free, no registration needed.
-

B. E-services related especially diversified farming and nature-based entrepreneurship

General related to diversified farming and nature-based entrepreneurship

Agronet – Maatalouden tietoverkko (*Agronet – Information Network for Agriculture*)

- www.agronet.fi
- Agronet is an information network (Internet Portal) for agriculture and food sector.
- Informative
- Charge-free, no registration

Maa- ja metsätaloustuottajain keskusliitto MTK ry (*The Central Union of Agricultural Producers and Forest Owners*)

- www.mtk.fi
- MTK takes care of various interests and living conditions of farmers, forest owners, rural entrepreneurs and rural people
- Information about member associations, events etc.
- Informative
- Charge-free, no registration required
- Public

Pro Agria Maaseutukeskusten liitto (*ProAgria*)

- www.proagria.fi www.maaseutukeskus.fi
- Leading agricultural expert organisation in Finland, serving members as well as other rural entrepreneurs
- Informative, information for rural entrepreneurs and farmers.
- Charge-free, no registration

Maa- ja elintarviketalouden tutkimuskeskus MTT (*Agrifood Research Finland*)

- www.mtt.fi
- An expert body operating under the Finnish Ministry of Agriculture and Forestry. Produces and disseminates scientific research information and develops and promotes the transfer of new technology for the agriculture and food sector as a whole.
- Informative
- Charge-free, no registration required

Agropolis Oy (*Agropolis Ltd*)

- www.agropolis.fi
 - Agropolis Ltd is a development company operating in the agricultural and food sectors. Organises training in entrepreneurial business and management and arranges technical assistance for various purposes.
 - Owned by MTT Agrifood Research Finland.
 - Information about the services.
-

Luontoyrittäjyyden tietopankki (the Data Base of Nature-based Entrepreneurship)

- www.luontoyrittaja.net
- Targeted to all actors in NBE sector, providing information on e.g. entrepreneurs, products, services, public actors, literature, tailored information etc.
- Informative, information on different sectors of NBE
- Charge-free, no registration
- Administrated by the Finnish Nature-based Entrepreneurship Association

Services related to food industry

Elintarviketeollisuusliitto (*Finnish Food and Drink Industries' Federation FFDIF*)

- www.etl.fi
- The FFDIF represents and promotes the interests of Finnish food and drink industries.
- Representation encompasses industrial policy and labour relations.
- The FFDIF provides a forum for co-operation and interacts with authorities, trade, producers, and other interested parties.
- Monitors and influences legislation affecting the food industry.
- Promotes co-operative research within the industry, and research funding.
- Concludes collective agreements for the industry, offers companies guidance in matters relating to labour legislation, assists and supports companies in labour disputes.
- Analyses the industry's economic trends and prepares statistics.
- Provides training and information.
- Informative
- Charge-free, no registration

Elintarvikevirasto (*National Food Agency Finland*)

- www.elintarvikevirasto.fi
- For entrepreneurs of Food sector.
- Informative
- Information for entrepreneurs, for example application and notification forms
- Charge-free, no registration

Elintarvikkeiden koostumustietopankki, FINELI (*Food Composition Database Fineli*)

- www.ktl.fi/fineli
 - The national food composition database Fineli was established at the KTL in Nutrition unit in 1984. The whole database contains information for 290 nutrient factors and over 2500 foods of which half is mixed dishes.
 - Informative, information about nutrient values etc.
 - Charge-free, no registration
-

Eläinlääkintä- ja elintarviketutkimuslaitos EELA (*National Veterinary and Food Research Institute of Finland*)

- www.eela.fi
- EELA is the National Veterinary and Food Research Institute of Finland and it operates under the control of the Ministry of Agriculture and Forestry.
- The aim of the National Veterinary and Food Research Institute (EELA) is to promote both animal health and welfare as well as to safeguard the safety and quality of livestock products.
- The National Veterinary and Food Research Institute (EELA) conducts research, provides advisory services and undertakes risk assessment.
- Informative, information about the services and publications
- Charge-free, no registration needed

Laatuketju (*"The Quality Chain of Foodstuffs"*)

- www.laatuketju.fi
- Information about quality of food chain.
- For producers and consumers
- Information about quality strategy
- Informative
- Charge-free, no registration needed

Services related to forestry and the use of forests**Metsäkeskus (*"Finnish Central for Forestry"*)**

- www.metsakeskus.fi
- Regional Internet sites
- Counselling for forest owners and for businesses concerning wood sector.
- Informative. Information about services.

Metla (*Finnish Forest Research Institute*)

- www.metla.fi
 - Metla's social task is to promote – through research – economically, ecologically and socially sustainable management and utilisation of the forests.
 - Metla is subordinated to the Ministry of Agriculture and Forestry
 - Information on forest related research results and phenomena to the end users and other interested parties. Information is provided through a number of channels (e.g. Metinfo in Internet, library, photo-archive etc.)
 - Informative
 - Some of the services are chargeable and require registration (e.g. Metinfo)
-

Metsätalouden kehittämiskeskus Tapio (*The Forestry Development Centre Tapio*)

- www.tapio.net
- FDC Tapio monitors the development of the forests and launches initiatives in issues relating to them.
- Good forest management is the basis for FDC Tapio's operations. Good forest management includes an ecologically, economically and socially sustainable forestry practice. With this objective in mind, FDC Tapio provides a variety of methods and materials: courses, publications, quality control systems.
- Information of services (e.g. training, expert services)
- Electronic marketplace, where one can buy publications etc.
- Charge-free (partially), no registration

Metsänhoitoyhdistykset (*Forest Management Associations*)

- www.mhy.fi
- Forest Management Associations are working in close co-operation with forest owners in all matters related to forests – from planting to harvesting. FMAs offer training and guidance and provide professional assistance in forestry issues.
- Informative, information about FMAs and their services.
- Charge-free, no registration required

www.forest.fi

- www.forest.fi
- www.forest.fi forms a gateway to the forest information highway, with a comprehensive list of links about forest and wood, the latest bulletins on the forest sector, an events calendar, and a question & answer column.
- Public
- Charge-free, no registration

Puu-Suomi (*Wood Finland -Project*)

- <http://maaseutu.pkky.fi/puusuomi>
- Information of Wood Finland -Project
- Informative, information of wood sector and forestry, puu-suomi info e-magazine.
- Charge-free, no registration

Metsähallitus (*Forestry Administration*)

- www.metsa.fi
 - Metsähallitus is a state enterprise operating within the administrative sector of the Ministry of Agriculture and Forestry. Most of its turnover is generated by timber sales. In addition to business operations, Metsähallitus also has social and public authority duties which are financed by the State. In matters relating to nature protection, Metsähallitus which is responsible for the greater part of Finland's protected areas, works under the Ministry of the Environment.
 - Informative, information for enterprises and nature tourists
 - Charge-free, no registration needed
 - Public
-

Laatunmaa

- www.laatumaa.com
- Laatunmaa is a unit of Metsähallitus. It sells and leases sites administered by Metsähallitus and buys and sells forest estates.
- Information about services (offers appraisals concerning the values of sites etc.)
- Informative
- Charge-free, no registration needed

Services related to rural tourism

Matkailun edistämiskeskus (*Finnish Tourist Board*)

- www.mek.fi/frameset.html, www.finland-tourism.com
- Information about travelling and tourism in Finland
- Informative
- Charge-free, no registration required
- Public

Suomen latu ry (*The Central Association for Recreational Sports and Outdoor Activities*)

- www.suomenlatu.fi
- Arranges and supports outdoor sports and health activities and pursuits to promote physical fitness, health and recreation. Consists of 230 member organisations in various parts of the country.
- Offers services to municipalities, organisations, schools, societies and companies.
- Informative
- Charge-free, no registration required

Maaseutumatkailun majoitustilojen valtakunnallinen luokitus MALO (*Finnish country holidays' national classification of country holiday accommodation*)

- www.maaseutukeskus.fi/matkailuluokitus.htm
- Provides a basis for improving quality of accommodation standards. The classification data is also used to monitor trends in accommodation quality in Finland. The classification is nation wide, making it possible to evaluate country holiday accommodation by equal criteria throughout the country.
- For rural tourism enterprises.
- Informative
- Charge-free, no registration required

Vaeltamisen, retkeilyn ja Lappi-tietouden linkkikeskus

- www.vaellusnet.com
 - Information about trekking and Lapland
 - Informative, web links, chat etc.
 - Charge-free, no registration
-

Matkailun ohjelmapalvelujen normisto MoNo

- www.keyeast.imatra.fi/normisto/
- Information about norms and standards of tourism related services
- Project-based
- For tourism businesses, also for consumers
- Administrator: Imatran seudun kehitysytio Oy (The development company of Imatra region)
- Informative
- Charge-free, no registration required

Maaseutumatkailun teemaryhmä (*Theme Group on Rural Tourism*)

- www.mmm.fi/maasmatk
- Informative, information about rural tourism, researches and development activities, links
- Charge-free, no registration

Kaikki Suomen kalastuslinkit (Internet Portal for Fishing in Finland)

- www.kalastus.com
- Internet links concerning fishing in Finland
- Charge-free, no registration

Matkailualan tietokeskus (*The Information Centre for Tourism*)

- www.matkailu.org
- Administrator: The University of Joensuu
- For those interested in scientific information of tourism.
- Depository Library Status by World Tourism Organisation
- Charge-free, no registration
- Public

Matkailun osaamiskeskus (*Centre of Expertise of Tourism*)

- <http://moske.matkailu.org>
- Administrators: The Innovation Centre of Savonlinna / The Network Centre of Expertise of Tourism
- For tourism businesses
- Information of training and research concerning development of tourism business.
- Charge-free, registration required for certain parts

Luontoon.fi (*Hiking Pages*)

- www.luontoon.fi
 - The Hiking Pages present the special facilities and services that have been built in the state-owned forests for the needs of nature lovers to make hiking in the forests, on the peatlands and in the fjeld areas of Lapland easier and safer. The state-owned forests cover more than one fourth of Finland's land area and they are managed by Metsähallitus.
-

- Information about hiking areas
- Charge-free, no registration

Suomen kanoottiliitto ry (*Finnish Canoe Federation*)

- www.kanoottiliitto.fi
- Information of canoeing for nature tourism enterprises and for those interested in paddling.
- Charge-free, no registration

Travel Park yrityshautomot (*Travel Park*)

- www.travelpark.fi
- For tourism businesses. Each Travel Park unit chooses companies and business ideas to the development program according to applications.
- Online business consultancy, lists of enterprises within the Travel Park.
- Membership fee

Suomen majoitusliikkeet -oppaan kotisivut (*Boarding Houses in Finland*)

- www.matkailu.com
- Informative, information of boarding houses in Finland
- Charge-free, no registration

Suomen retkeilymajajärjestö – SRM ry (*Finnish Youth Hostel Association*)

- www.srmnet.org
- Information about hostels
- Charge-free, no registration

Maaseutumatkailu-lehti (*Rural Tourism e-magazine*)

- www.mmm.fi/maasmatk/lehti
- Informative, information of rural tourism
- Charge-free, no registration

Lomaliitto ry

- www.lomaliitto.fi
- Lomaliitto with its partnership companies develop, produce and sell moderate-priced and good-quality products related to leisure-time and rehabilitation in order to maintain and promote individual's psychic and physical health conditions.
- Informative, information of resorts and services.
- Charge-free, no registration

Suomen lomapalvelu (*Holidays.fi*)

- www.suomenlomapalvelu.fi
 - Informative Internet portal of tourism business (prices etc.)
 - Charge-free, registration required partially
-

Finnhospitality

- www.finnhospitality.net
- Administrator: Library of Haaga Institute
- Information of tourism services
- Informative, link lists
- Charge-free, no registration

Suomalaisen liikunnan tietopankki (*National Sport Databank*)

- www.sport.jyu.fi/
- LIITO is a databank for sport clubs and organisations that includes contact, activity and financial information of sport clubs and organisations.
- LIPAS Includes information about all sport facilities in Finland, their location and management, planning and building, usage and equipment.
- The outdoor recreation supply databank (LUOVI) consists of information about recreation areas and places and outdoor trails. Generally the location, the type of the area, place or trail, their sizes and lengths and the services related to outdoor recreation facilities are found in the system.
- LUMA-system (sport and nature tourism databank) consists of information on enterprises that offer sport and nature tourism services. Information can be searched by enterprise or desired services or activities or by desired province, region or municipality.
- Informative
- Charge-free, no registration needed for all services
- Users: decision makers, managers of facilities, organisations, researchers, media, travel industry, recreationalists and sportspersons

ReseNet

- www.rese.net
- Internet links
- Information of tourism services
- Charge-free, no registration needed

Setla

- www.setla.net
 - For the producers of experience and adventure services.
 - Informative, information about adventure and experience services (safety and quality norms and standards etc.)
 - List of service suppliers within the Setla-programme
 - Chat-forum
 - Charge-free, no registration required
-

Services related to products from nature

Arktiset Aromit (*Arctic Flavours*)

- www.arctic-flavours.fi
- Information on berries, mushrooms and herbs and business opportunities related on them
- Informative
- Charge-free, no registration
- Administrated by the Arctic Flavours Association

Luonnontuotealan teemaryhmä (*Theme Group of Products from Nature Rural Policy Committee*)

- www.mmm.fi/luonnontuote
- Informative, information about nature products, researches and development activities, links
- Charge-free, no registration

Marjamaakunnat-projektin sivut (*Berry Provinces Project*)

- www.ascentia.fi/marjamaakunnat/f-marjat.htm
- Information about berries (picking, quality control, transportation etc.)
- Informative
- Charge-free, no registration

Sienipörssi (*Mushroom Market*)

- www.sieniporssi.com
- Administrator: Lapin martat ry
- Informative, information of mushrooms and e-business concerning mushrooms
- Charge-free, no registration (except mushroom sellers)

Turveteollisuusliitto ry (*The Association of Finnish Peat Industries*)

- www.turveliitto.fi
- The function is to promote production and utilization of peat in Finland. The association is a private organization, which consists of peat producers, contributing collective members and individual members.
- Informative, information about peat cultivation etc.
- Charge-free, no registration

Suoseura ry (*Finnish Peatland Society*)

- www.suoseura.fi
 - The Finnish Peatland Society is a scientific society. The aim of the society is to encourage the study and research of peat and peatlands in all aspects and to promote their sustainable and socio-economic use.
 - Informative. Information about the society and its activities
 - Charge-free, no registration
-

Others

Suomen mehiläishoitajain liitto ry (*Finnish Association of Beekeepers*)

- www.hunaja.net/smlokoti/sml.htm
- Informative, information about bees.
- Charge-free, no registration

Valtion ympäristöhallinnon verkkopalvelu (*Finland's environmental administration*)

- www.ymparisto.fi www.environment.fi
- Information about environmental administration
- Informative
- Public
- Charge-free, no registration

Suomen luonnonsuojeluliitto ry (*Finnish Association of Conservancy*)

- www.sll.fi
- Information about topical issues concerning nature conservation.
- For those interested in nature conservation and environmental protection.
- Informative
- Charge-free, no registration
- Public

Riista- ja kalatalouden tutkimuslaitos RKTL (*Finnish Game and Fisheries Research Institute*)

- www.rktl.fi
- Produces scientific and high-quality data about fisheries, game and reindeer for sustainable use of natural resources.
- Informative
- Charge-free, no registration required
- Public

Maanmittauslaitos (MML) (*National Land Survey of Finland*)

- www.maanmittauslaitos.fi
 - The NLS produces and distributes information and services on real estate, topography and the environment.
 - The NLS's most important and demanding function is to carry out actual surveys, most of which comprise parcelling. The information on real estate gathered in this way is stored in the NLS's cadastral register. The digital cadastral index map covers the whole country.
 - Informative, information of services and District Survey Offices, maps
 - Public
 - Charge-free, no registration needed
-

Suomentaitoverkko.fi (*The Finnish Crafts Organization*)

- www.suomentaitoverkko.fi
- Information for crafts entrepreneurs about training, projects, products etc.
- Informative
- Charge-free, no registration

Ilmatieteen laitos (*Finnish Meteorological Institute*)

- www.fmi.fi
- The main objective of the FMI is to provide the best possible information about the atmosphere above and around Finland, to ensure public safety relating to atmospheric and airborne hazards and to satisfy requirements for specialised meteorological products.
- WAP-weather Service. It is possible to get a weather forecasting service straight from one's mobile phone. Requires only Wireless Application Protocol mobile phone.
- Air Quality expert Services
- Informative

Geological Survey of Finland (GTK)

- www.gtk.fi
- Information pages of the research organisation. Provides e.g. research results, geological data etc.
- Public
- Charge-free, no registration

Maaseudun tulevaisuus -lehti (*"Maaseudun tulevaisuus" – electronic newspaper*)

- www.maaseuduntulevaisuus.fi
- Mainly for farmers but also for all of those interested in current topics of the rural issues.
- Informative, chat-forum, e-marketplace etc.
- Mainly charge-free (extra services for subscribers of the newspaper e.g. weather forecast), no registration required

Suomalainen maaseutu -lehti (*"Suomalainen maaseutu" -newspaper*)

- www.suomalainenmaaseutu.net, www.suomalainenmaaseutu.maasyke.fi
 - Information about the newspaper (subscription fees etc.). Mainly for farmers but also for all of those interested in current topics of the rural issues.
 - Event calendar
 - Charge-free, no registration (except the event calendar).
 - Not an electronic newspaper.
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UNIVERSITY OF HELSINKI

Seinäjoki Institute for Rural Research and Training