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Assessing the markets for electronic information services in Finland

MSSTUDY II Finland

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Abstract

MSSTUDY II Finland is part of a multinational study for assessing the development of the markets for electronic information services (EIS) in the European Economic Area (EEA). The study which was initiated within the European Commission's INFO2000 programme was carried out in 1998–1999 in sixteen states of the EEA. The reference year was 1997. The study covered: the supply of electronic information services (online and offline) for professional purposes in Finland, the demand for electronic services by households (usage and intensity of electronic services), description of the business environment, a survey on national experts' views about future trends of the markets and a best practice case of the regional information services network in Kuusamo. The partners were VTT Information Service (main responsibility and co-ordination), Statistics Finland and VTT Information Technology. The Finnish national report was delivered to the European Commission in June, 1999.

Results of the quantitative supply survey were completed with qualitative desk research and contacts with experts. Demand was surveyed by computer-aided telephone interviews in the framework of the National Labour Force Survey in September, 1998. National experts expressed their opinions on various aspects of the markets for EIS, on new business areas and commercially promising products and services, on market barriers in Finland and on information policy both in Finland and in the European Union. The business environment comprises descriptions of technical infrastructure, institutional infrastructure, information policies and plans, legal issues as well as economic infrastructure.

Preface

Initiated and co-funded within the European Commission's INFO2000 programme, a multinational study for assessing the development of the markets for electronic information services was carried out in 1998–1999 in sixteen states of the European Economic Area. The project was entitled MSSTUDY II (Member States Study II, Assessing the Situation of the Markets for Electronic Information Services in the European Economic Area); the reference year was 1997. The project was carried out in Finland by VTT Information Service as the project leader, in collaboration with Statistics Finland and VTT Information Technology.

Representatives of Finnish sponsors and partners formed the support group of the study, consisting of Ms. Annu Jylhä-Pyykönen, Ministry of Education, Ms. Kristiina Laurila, National Tecnology Agency (Tekes), Ms. Anu Lamberg, Ministry of Transport and Communications, Mr. Antti Rainio, Finnish National Fund for Research and Development (SITRA), Mr. Sauli Laitinen, VTT Information Service, Mr. Timo Siivonen, VTT Information Technology and Ms. Lea Parjo, Statistics Finland. Their support is very much appreciated. The project leader Ms. Merja Lehti also wishes to thank MSSTUDY II partners Mr. Siivonen and Ms. Parjo for their valuable contribution and smooth co-operation in carrying out the project. A very special thank-you goes to Dr. Pirkko Eskola at VTT Information Service for her valuable advice and expert competence in contributing to the project.

The authors hope the report is of assistance in describing the elusive market of electronic information services for professional purposes in Finland. Ms. Parjo has written chapters 3.1–3.3, Mr. Siivonen chapters 5.1.1–5.1.3.1 and 5.1.4.1 and Ms. Lehti all other chapters. The main author, Ms. Lehti, however, is solely responsible for the conclusions drawn and presented herein.

Espoo, June 1999

Merja Lehti

Contents

1. Introduction

1.1 Aim, objectives and scope of the member states study

MSSSTUDY II Finland is part of a multinational study for assessing the development of the markets for electronic information services in sixteen states of the European Economic Area. The study was initiated and co-funded within the European Commission's INFO2000 programme, and entitled MSSSTUDY II (Member States Study II, Assessing the Situation of the Markets for Electronic Information Services in the European Economic Area). The national partners were Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden and the United Kingdom. The reference period was 1997. The approach of the study was similar to that of a previous one, MSSTUDY I which was initiated under the European Commission IMPACT 2 programme and covered the markets for electronic information services in seventeen member states of the European Economic Area in 1994.

The main aim and objective of the multinational study was to provide an overview of the European market of electronic information services, in order to assess the competitive strengths and weaknesses of Europe, compared with the situation in North America and Japan. For this purpose, the national studies were co-ordinated and the results aggregated at a European level to enable national and international comparisons.

The scope of MSSSTUDY II was broader than that of MSSSTUDY I, evidently considering the rapid development in the supply of electronic information services and electronic services in general since 1994. The present study covered five main subjects:

1) the supply of electronic information services (EIS) for business or professional purposes (i.e. online and offline EIS mainly for professional purposes in the working places, e.g. in an enterprise, a research institute, or a government institution)
2) the demand for electronic services, i.e. usage and usage intensity of electronic services for private and business purposes
3) the business environment, i.e. the techological, institutional and political infrastructure of the markets as well as legal and regulatory issues
4) national experts' opinions about future trends of the markets
5) a best practice case or a success story of a special national strength within the environment of electronic information services.

1.2 Methodology of the study and structure of the report

VTT Information Service co-ordinated the project in Finland and bore the main responsiblity for the supply survey, the case study and assessing experts' opinions about future trends, as well as the national report. Statistics Finland covered the demand survey. VTT Information Technology was responsible for the technology infrastructure section of the business environment, done by desk research.

The *supply* study was a quantitative survey based on a questionnaire which consisted of similar questions in all the participating countries. The supply questionnaire with its cover note is Appendix B. The quantitative supply survey was supplemented with desk research and expert opinions. Supply is covered by chapter 2 in the present report.

The *demand* for electronic services was surveyed by Statistics Finland. The method used was CATI (computer-aided telephone-interviews), a common recommendation to all the participating countries. A representative random sample of Finns in the age range of 15 to 74 years in 3000 households was interviewed in the framework of the Labour Force Survey in September, 1998. The survey questionnaire is Appendix C, and chapter 3 deals with demand.

National experts' opinions about the future and trends of electronic (information) services were also surveyed. The questions posed to national experts are included in Appendix D. The original questionnaire was too complicated and therefore streamlined for Finnish purposes and sent to target persons by e-mail. Chapter 7 deals with experts' opinions.

Regional electronic information networks with interactive services on the Web are being developed in a growing number of municipalities in Finland. The Finnish *case study* is presented as chapter 6 and tells about the regional EIS network of Kuusamo, a municipality in northeastern Finland. In addition to the Web site of Kuusamo, further information was gathered by e-mail questions to representatives of the Kuusamo municipality (Ahonen 1999).

Chapter 2 in the report deals with supply, chapter 3 with demand. Chapter 4 covers the main findings of supply and demand. Business environment is covered in chapter 5 and the Finnish case study is presented in chapter 6. Experts' views about future are covered by chapter 7. The final chapter 8 summarizes the situation of the markets in Finland with conclusions.

For 1997, the exchange rate of 5,881 FIM to one ecu has been used, for 1998 the rate of 5,94573 FIM to one euro.

2. Supply side survey

2.1 Setting the electronic scene: players in Finland

Finland is a leader in database production among the Nordic countries. *Publicly available databases*, containing information for professional purposes, are currently produced by about 160 database *producers* in Finland. The number of databases is about 300 (one third of all Nordic databases), available either online or on CD-ROMs, diskettes or as WWW databases, or on two or three different electronic media. They are hosted by about 90 Finnish *hosts*, according to 1998 update of NORDGUIDE, the database of Nordic databases, producers and hosts. Traditionally, databases were produced and hosted by university libraries or government institutes in differenct branches in Finland. Commercial enterprises then entered the branch, but only a few of them are big enough to play a significant role in the market. At the present age of the proliferation of supply in the Internet, a variety of non-traditional EIS suppliers abound.

At the beginning of 1998, over 144 *providers of WWW service*s were listed in a directory by Tietoverkko, a leading magazine of the branch in Finland; only few of them commercially important. According to the same niche magazine, the number of *Internet operators* was 25; fifteen of them operating nationally or across several telephone directory areas. The catalogue of the *Association of Independent Producers in the audio-visual branch in Finland* (*Suomen audiovisuaalisen alan tuottajat, S.A.T.U*) lists 82 member companies in 1997; twenty-one of them in the multimedia section of the association. *Multimedia Special Interest Group, MSIG Finland* maintains a register of companies engaged in new media. At the beginning of 1998, the register had information about 150 companies, some of them the same as listed by Tietoverkko in their WWW directory and in the S.A.T.U catalogue. Around fifteen of them could be considered of commercial significance.

There are a number of Internet operators in the market, those with a national coverage and those who only operate regionally. The most significant of them are Sonera (formerly Telecom Finland), Helsinki Telephone Corporation/Kolumbus with other local telephone companies (Finnet), Saunalahden Serveri, EUNet Finland, FUNET, Clinet and Megabaud.

2.2 Methodology and response rates

Supply of electronic information services in Finland was surveyed by quantitative means. A thorough questionnaire, common to all participating countries in MSSTUDY II, was partly translated into Finnish (Appendix B) and sent to major online hosts, database producers and representatives of foreign hosts, also to major Internet and WWW providers, new media companies and publishing houses active in electronic publishing, to a total of 96 targets.

The following targets received the questionnaire either in print or via e-mail:

- Internet providers, new media companies and electronic publishers: 30
- Finnish hosts and producers: 59
- Representatives of foreign hosts: 7.

The provider scene is under constant turbulence with mergers and acquisitions. Changes have been taken into account in the list of targets above.

Despite repeated efforts, the response rate was not very high, mainly due to the complicated nature of the questions. Table 1 shows the numbers of targets and responses received. The primary response rate was 33% but nine respondents indicated various reasons why they could not answer; thus 23 was the total of usable responses, i.e. 24% of the number of questionnaires sent. Not all respondents, however, answered all the questions. For the purposes of the supply survey, it was essential that the respondents indicate their EIS turnover (question No. 4 in the questionnaire, cf. App. B). Not all of them did, resulting in only 16 fully usable respondents, i.e. a response rate of only 17% of the number of questionnaires sent. Fully usable responses take a 50% share of total responses and almost 70% of usable responses.

Table 1. Supply of electronic information services in Finland, questionnaires sent and responses received (numbers and percentages).

Questionnaires sent, A = 100%	Responses received (% of A)	Usable responses (% of A)	Fully usable responses (% of A)
96	32 (33%)	23 (24%)	16 (17%)

It was not possible to draw any conclusions about the supply of EIS in Finland, based on the responses only. Additional information about EIS supply had to be gathered by desk research and by e-mail and telephone contacts. Some characteristics of the markets are, nevertheless, covered in the following sub-chapters of chapter 2.3 – but based only on responses received, unless otherwise stated.

Two approaches

To get an overall view 1) of he EIS industry of a given country and 2) of the whole domestic market, two approaches were used in interpreting the results of the quantitative survey, according to the Manual of MSSTUDY II and further instructions from the co-ordinating team. A foreign EIS supplier then is an importer, if the ultimate provider has its headquarters in a foreign country (e.g. Reuters, Dialog etc.). Accordingly, supply survey tabulations have been made using two different approaches; estimations about the overall supply scene have also bee made accordingly.

The purpose of the *industry approach* is to find out how strong the national information industry is. In this approach overall supply of domestic information providers is considered, including exports. No imports are considered in this approach.

The purpose of the *market approach* is to define the size and volume of the EIS market in a given country, including domestic supply and imports. No exports are considered in the market approach.

2.3 Characterisation of respondents

Being a host or other provider of electronic information services, whether online or offline, is not the main activity of very many respondents. In fact, more than half of the targets with usable responses classified themselves as providers of printed or other information products.

2.3.1 Employment and profitability

The respondents were asked about the number of their staff related to electronic information services at the end of 1997 and 1998. About 78% of usable responses (which is 56% of responses recived but only 19% of the total number of questionnaires sent) included answers to this question. The responding organisations employed an average of 25 persons in EIS activities. Even though the average is more than in 1994, it is not reasonable to compare the figure to that of the previous MSSTUDY since the respondents are not the same as in MSSTUDY I and the question was not formulated in

a similar way. An average of 25 persons may indicate that since the years of recession when information service units were closed down or information service activities merged with other units in a company, the enterprises have again realized the value of a well-organized specialty unit in the turbulence of the Internet age.

The repondents were asked if they consider their offerings of EIS profitable in 1997 in terms of operating costs or total costs - and if not, when would they expect to cover such costs (No. 10 in the questionnaire). About 78% of usable responses also included answers to this question. About 67% of those who responsed to this question stated their EIS offerings were profitable in 1997 in terms of operating costs, 60% stated their offerings were also profitable in terms of total costs, including all investments.

A common notion was that the EIS offerings would cover the corresponding costs either later than 1999 or never, no matter whether counted in operating or total costs.

2.3.2 Subject areas, export areas and users

Subject areas

Subject areas of the respondents' EIS offerings were given in the majority of fully usable answers. As many as two out of three of those replying to the question indicated the subject areas of their EIS offerings. Measured by market income or turnover from electronic services in 1997 the most important subject area was credit information, even though stated only by one fifth of those responding to this question. Other company information was indicated by one third of those responding. Scientific, technical and medical information was indicated by 40%, other business and economic information by over half of those responding to this question. All the other subject areas, however, fall far short of the importance of credit information in economic significance in the responding organisations' turnover. Due to inconsistencies in the structure of the questions in the supply questionnaire, we do not know if the respondents have included exports in their answers about subject areas. Table 2 lists all important subject areas, based on responses received and according to the industry approach, (cf. chapter 2.2 about market and industry approach), assuming that the respondents have included exports in their answers. N.B. Some big suppliers of financial information did not answer the questionnaire.

Table 2. Market income of electronic information services (EIS) by subject areas in 1997 (%).

Subject area	*Percentage from EIS*
Credit information	37
Other company information	7
Business-oriented news	16
Other business and economic information	13
Scientific, technical, medical information	1
Government & other public information	5
Other information x)	22
Total	100

x) = subject areas below one percent (financial information, legal information, patent information, consumer information) plus "other subjects" (20%)

Exports

Finland is an importer of electronic information. There are only a few major exporters of online EIS. Exports have been considered according to the industry approach (cf. chapter 2.2 about market and industry approach). Of the suppliers responding to the questionnaire, five (22% of usable responses) were exporters. The percentage of exports was about 20% of their total EIS. The main market (about 65% of exports) was in the European Union countries or other countries of the European Economic Area. Any other countries in Eastern Europe, North or Latin America, Asia or elsewhere accounted only for a smaller share of exports (35%).

Finnish suppliers make most of their revenue (86%) in the domestic market.

Users

Electronic information for professional purposes is often aimed at certain user groups. The supply survey was looking for the importance of various user groups in percentages of the market income from EIS in Finland. Analysis of user groups is made by the market approach (cf. chapter 2.2), i.e. users of EIS by domestic suppliers as well as importers in Finland. Sixteen respondents indicated percentages of their most important user groups, measured in economic terms. Financial and commercial sectors stand for the major user groups. Real-time financial and news information as well as credit information is very much used by the financial sector (banking, insurance etc.). Self-evident, it was the most important user group by value. Other commercial services

(trade, traffic, consulting etc.) denote the next most important group. Table 3 indicates the percentages.

Table 3. Market income from electronic services in 1997 by user groups (%).

User group	**%**
Business	
Financial services	37
Other commercial services	16
Manufacturing	13,5
Oher business	8
Public sector	
Education, public research institutes, libraries	4
Government, administration	21,5
Private households, consumers	0,4
Total	100

2.4 Revenues and other factors about supply

Results of the quantititative supply survey were not comprehensive enough to give an overall picture of the supply of EIS in Finland. They have therefore been supplemented by relevant desk research, e-mails and phone calls.

2.4.1 Audiotex services

Audiotex services denote automatic value-added telephone services, based on speech or voice transmission. They are either interactive services or dial-and-listen services, also either premium-rate (subject to charge) or free-of-charge to the caller. Audiotex services consist of a variety of themes, such as time and date, news and weather, information about telephone, mobile phone and telefax numbers as well as addresses, poems, words from the Bible, currency exchange information, stock exchange rates, cinema programmes, pools and betting.

There is no official statistics about the revenues of premium-rate services. Two big operators dominate the supply of audiotex services in Finland: Sonera (formerly Telecom Finland, now privatized) and Helsinki Telephone Corporation, the biggest regional telecom company. – None of the respondents to the supply survey was a major audiotex provider.

In Finland it is the producers of audiotex services who determine the price that the caller pays, not the operators. This is different from elsewhere in Europe. Revenues of telecom operators do not therefore give an adequate overall picture of the audiotex market. Instead, we must consider the amount of money that consumers spend for premium-rate audiotex services.

Audiotex is no great business for the operators. A great number of former audiotex services have been transferred to the World-Wide-Web. Charges for short-distance calls have come down since 1994. The size of the total audiotex market is therefore about the same as in 1994 and may be estimated at 350 million FIM, based on the prices that the caller pays. Adult entertainment and contact services account for 50% of audiotex. Other services for more professional purposes account for the other 50% (*175 million FIM*, i.e. *30 million ecu*).

2.4.2 Telematic information networks

Interactive open information networks for public use, value-added telematic information networks, are provided in ASCII form and are thus truly "telematic" though started as videotex networks. The main providers of telematic networks in 1997 were Telecom Finland (Telesampo network) and Helsinki Telephone Corporation (Infotel network). Telematic networks provide a variety of information to individuals and companies. Services include banking, electronic market business-to-business, communications, leisure and entertainment, telephone catalogues, financing services, news and weather and travel and traffic information.

Telematic networks in 1997 were used for 66,6 million minutes or 1,11 million hours (985 000 hours in 1994). The services were mostly used for banking, over 69% of usage, next for business-to-business electronic markets, 11%.

The value of usage of telematic networks in 1997, without leisure, entertainment and so called "other" purposes, is estimated to total *36 million FIM (6 mecu)*.

2.4.3 Internet market

The reference year of MSSTUDY I was 1994, at the very beginning of the approaching Internet age. The period after that has seen the explosion of the Internet, an information super highway within reach of every citizen in the information society. Growth and potential of the use of the Internet is the target of many a market study, both in business and at home. It has, however, proved very difficult to come to an estimate of the value of the market in money terms, just because of the great potential realized and foreseen

by the bigger and smaller operators on the market. Within the range of services for professional business purposes, it is exactly the business users who count.

2.4.3.1 Operators and market estimates

There is a number of operators in the market, those with a national coverage and those who operate only regionally. The most significant of them are Sonera (formerly Telecom Finland), Helsinki Telephone Corporation/Kolumbus with other local telephone companies (Finnet), Saunalahden Serveri, EUNet Finland, FUNET, Clinet and Megabaud.

The merger of seven smaller Internet providers brought a new provider to the market in the spring of 1998. Saunalahden Serveri entered the market by the merger of three smaller Internet providers. Later in the year, four more providers were merged into Saunalahden Serveri. The company does not own fixed networks but buys the lines from other network operators. It claims to have a 30% market share, ranking No. 2 in the Internet providers' market in Finland, second only to Sonera (former Telecom Finland).

FUNET (the Finnish University and Research Network) is a network service provided by CSC, the Center for Scientific Computing to the universities, polytechnic colleges and the research community. The service includes an access to the high-performance backbone network with outstanding connections to the rest of the Internet both inside the country and internationally. The communication connections of the backbone network between the universities are mainly based on the ATM (Asynchronous Transfer Mode) connections hired from Helsinki Telephone Corporation. The connection speed of the backbone network is 155 Mbps.

WWW takes about 70% share of FUNET's " turnover", e-mail connections about 30%. FUNET as a whole, however, only accounts for approximately 15% of the total telecommunications costs of universities in Finland.

The Ministry of Transport and Telecommunications has made an estimate about the market value of Internet connections in Finland from 1994 to 1997. According to their estimate, the market in 1997 amounted to 210 million FIM (approx. 36 million ecu).

Taloustutkimus Oy in September, 1998, conducted a market research at Sonera's assignment about the value of Internet connections of companies and basic services related to them (Sonera 1998). Their estimate about the value of the whole market is *217 million FIM* (almost *37 million ecu).* The study was made as a computer-aided-telephone-interview (CATI survey) and the target group comprised companies in all

sizes in all business categories. Responses were given by 891 offices, of which 57% had Internet access.

Over 90% of companies with more than 100 employees have Internet access. Two thirds (71%) of small and medium-sized companies also have Internet access. One fourth of the smallest SMEs, those with 1–4 employees, have Internet access. Sonera is a market leader in all size categories, most markedly in large companies with over 250 employees.

According to Taloustutkimus, monthly costs of Internet access and basic services related to it vary from 180 FIM (about 31 ecu) to 5000 FIM (850 ecu) in companies.

IDC, International Data Corporation, recently conducted a survey about the Internet market in Finland, including products and services. The whole market in 1998 amounted to 2,3 billion FIM (387 million euro), a growth rate of 63% compared to 1997. IDC estimate the growth rate to slow down but they expect the value of the Internet market in 2002 to be 7,4 billion FIM (1,245 billion euro). It is especially electronic commerce that will boost the market.

According to IDC, the whole market is divided into four sections: hardware, software, information technology services and connection services. Their share of the market in 1997–2002 is given Table 4 (figures for 1997 based on an e-mail message from IDC).

Table 4. Internet market in Finland, million FIM (Tietoviikko 1999).

Market section	*Year 1997*	*Year 1998*	*Year 2000*
Hardware	735 million FIM	1040	2867
Software	110	168	814
IT services	316	691	2779
Connection services	260	416	932
Total:	1421 million FIM	2315 million FIM	7392 million FIM

Companies denote the major share of connection services, perhaps 80 to 85%, i.e. 208 to 221 million FIM in 1997 (35 to 38 million ecu). Estimated like this, their share of connection services in the above table in 1997 is analogous to an estimate about the market value of Internet connections made by the Ministry of Transport and Telecommunications or the market study by Taloustutkimus Oy.

Assumed that e-mail connections account for 30% of the figures, the rest would stand for WWW. On an average of the previous three assessments we come to an estimate of *170 million FIM (29 million ecu)* for WWW in 1997.

2.4.4 Online hosts

2.4.4.1 Domestic supply scene

Detailed information about databases produced in the Nordic countries has been gathered annually since 1985 by the assignment of NORDINFO, the Nordic Council for Scientific Information. The present *NORDGUIDE* is a Web database of Nordic databases (http://otatrip.hut.fi/nordinfo/nordguide/) which contain information for professional purposes and are publicly available either online, on CD-ROMs or diskettes or as Web databases (NORDGUIDE). Finland produces about 300 databases, one third of the total of Nordic databases. Finnish databases are produced by about 160 producers and made available by 90 hosts. Some of the organizations are both a host and a producer. In case of a university library, the producer also has the role of an information broker.

Databases have traditionally been produced by university libraries and other non-profit scientific organizations or government institutions in Finland. Since the early days of online information systems, commercial enterprises have also entered the market. Besides, in a competion situation a growing number of non-profit organizations are nowadays obliged to cover at least part of their costs with external revenues.

There are about a dozen major online hosts in Finland that are commercially significant – some of them are briefly described in the following. A few host retrospective databases, others provide real-time newswire services or financial information. The corresponding classification is also to be seen from responses to the supply questionnaire. Mostly, being an online host is not the main activity of the organization. Providing printed information or some other information products take the greatest share of the organization's income.

Esmerk Information (http://www.esmerk.com) provides a unique concept of tailor-made online news service. Since 1975 the company has expanded internationally and nowadays has thirteen offices in EU countries, Russia, Baltic countries, in the Far East and in South America. About 30 000 end-users, political and business decision-makers in more than 1000 companies and government institutions in 25 countries benefit from Esmerk services. Individually structured Esmerk reports are supplied daily in electronic or hard copy format.

Finnish News Agency (*Suomen Tietotoimisto, STT*, http://ww.stt.fi) has traditions in news services since 1887 and is, of course, also an exporter and an importer of newswire services. STT is owned by 50 leading Finnish media companies. STT also offers e.g. a channel for online press releases, a GSM news service and an electronic events calendar.

Startel, founded in 1988, is a subsidiary of Sanoma Corporation. Startel (http://www.startel.fi) is the leading Finnish provider of domestic online financial, corporate and economic information as well as a provider of satellite distributed broadcasted information to software applications for the Finnish financial industry. StarWeb Financial Information Service contains both real-time information and past data in numerical and graphic form and is continuously updated. Main sources for StarWeb information are Startel News Agency (news in Finnish), Helsinki Stock Exchange (prices and press releases), Finnish Securities and Derivatives Exchange (SOM, prices) and Finnish banks and brokers (foreign exchange, money market and economics).

Tieto Corporation Oyj, Tietopalvelut (http://www.tt-tietopalvelut.fi/) belong to the Tieto Group and provide a wide variety of online information services in a number of branches for both professional and consumer purposes, such as legal information, real-estate, news, business and companies, European Union etc.

Suomen Asiakastieto Oy (http://www.asiakastieto.fi) is a credit information agency, owned by Finnish industry and commerce and employing 130 persons. It offers the most varied range of credit information services in Finland. The company is an intermediator for both filed data and the expertise of investigators.

2.4.4.2 Revenues of online hosts: market and industry approach

In dealing with supply survey responses and in estimating the overall view of the supply of electronic information services (EIS) in Finland, two approaches have been followed: market approach and industry approach. They are defined according to MSSTUDY II Manual and further instructions from the co-ordinators of the pan-European study.

The *market approach* concerns the size and volume of the EIS market for professional purposes in Finland and includes both domestic supply and imports. Exports of domestic suppliers are not included. The *industry approach* discusses the strength of the national information industry. Overall supply of domestic information providers is considered, including exports. No imports are considered in this approach. Results of the supply survey are discussed in this sub-chapter about online hosts according to the

two approaches. Further estimations have been made since responses received did not cover all EIS supply.

Online hosts denote three kinds of providers: a) those providing retrospective online database services; b) those providing real-time financial information services and c) those providing real-time news services. Retrospective online database services mean online information services delivering information from retrospective databases which may contain different kinds of data (reference, factual, numeric, full-text etc.) in a number of subject areas for a number of retrospective time periods. Traditional scientific databases are an example of such online services.

According to the *industry approach*, the turnover of online retrospective hosts in Finland is estimated at about 34,2 million FIM (approx. 5,8 million ecu). Turnover of hosts delivering real-time financial and news services is estimated at 193 million FIM (approx. 33 million ecu). Thus the volume of domestic EIS suppliers would be about 227 million FIM (38,6 million ecu), including exports of domestic suppliers.

Following the *market approach*, imports of online retrospective and real-time hosts are included but exports not included. We estimate the size of the market calculated by the turnover of online retrospective hosts and further estimates made, to total 87,4 million FIM (15 million ecu). Turnover of hosts delivering real-time financial and news service is estimated at 344 million FIM (58 million ecu). Domestic suppliers as well as imports by "foreign" hosts are included in the market approach. Export is, of course, not included.

An overall estimate is presented in chapter 2.5.

2.4.5 Multimedia, new media

MSSTUDY II survey about the supply of electronic information services also aimed at finding out about the revenues of multimedia suppliers for professional or business purposes. Multimedia – both online and offline – (question No. 7) was specified in two ways, consisting of a) text with graphic, tables, standing pictures (images); or b) text with audio and/or video (motion pictures) elements. It was not possible to draw any conclusions about the situation in Finland, based alone on the very minor number of responses to this question. Information about new media companies was gathered by desk research and contacts to experts of the branch.

2.4.5.1 Terms and definitions

New media is a controversial term, very often connected to advertising in the Web. It implies to multimedia or digital media. Multimedia is a concept describing a content product in the Web; a cinema or a feature film is also a content product in this sense. New media serves a number of purposes, ranging from games and entertainment to producing home pages, from constructing electronic "shops" or marketplaces for commerce all the way to fact and reference books available on offline media or on the Web.

What does a new media company do? There are three kinds of players in the branch: a) new media as Internet publishers, i.e. providers of advertising spots; b) advertising agencies operating in the Internet and c) production companies of new media, comparable to film producers, usually considered subcontractors to the former two. There are players in each section in Finland, mostly not those who are traditionally engaged in the supply of electronic information services.

According to a more precise defnition a new media company is involved in digital media (incl. multimedia and CD-ROM) and/or information networks, e.g. the Internet. Its activities cover content production, electronic selling, consulting, training, distribution, publishing, acting as an operator etc.

Another definition would say that a new media company is engaged in providing and developing Web solutions and network communication strategies. It develops and supplies digital communication and system solutions, business-to-business consulting services as well as training and providing content to various services. Thus a new media company can be anything from purely system and software solutions to a content provider.

2.4.5.2 New media companies in Finland

About 60% of new media companies are specialists involved only in new media. They are concentrated in southern Finland and 70% of them are located in the capital region. New media companies are typically SMEs with a small turnover. The total turnover of new media companies in content production and providing is estimated to have amounted to 245 million FIM (42 million ecu) in 1996 (Tutkimus suomalaisesta uusmediateollisuudesta 1997). New media companies expected a turnover of 490 million FIM (83 mecu) for 1997. Some of the estimates may, however, show more expectations than reality.

The growth rate of new media businesses has been enormous. In 1995 the total turnover of new media companies amounted only to a few dozen million FIM but was to reach 700 million FIM (118 million euro, exchange rate 5,94573) in 1998, by optimistic estimates. The turnover is expected to grow by a quarter again in 1999 – making new media a billion FIM business in the year 2000.

The scene is turbulent in Finland, with changes going on in business. Some examples are Talentum and Edita, two big Finnish publishers. *Talentum* Group publishes business magazines in economy, technology, information technology and marketing, and also provides supplementary services. Recently, Talentum has expanded to communications business and is on its way to becoming a versatile media company. Talentum shares are listed on Helsinki Exchanges Main List. The company is owned by engineer and economist associations, companies and associations representing the business and companies.

Edita Group provides total service in printing and publishing, and ranks among the ten largest companies in the Finnish graphic arts industry: it employed 792 persons in 1997 and had net sales of 406 million FIM (69 million ecu). The parent company is the former Government Printing Office, established in 1859. Edita Group has also entered the new media branch by acquiring To the Point Oy, one of the biggest new media companies in Finland. Thus Edita Group nowadays includes seven subsidiaries.

The Association of Independent Producers in Finland (Suomen audiovisuaalisen alan tuottajat, S.A.T.U) gathers together companies in the audio-visual branch in Finland. At the end of 1997, S.A.T.U had 82 member companies – the number of members showing an annual growth rate of over 20%. The companies' combined turnover in 1997 was 454 million FIM (77 million ecu) and they employed a total of 633 persons (S.A.T.U 1998).

S.A.T.U consists of companies in various audio-visual sections: advertising films or commercials, multimedia production, TV programme production, company videos and general production services. The biggest and best-known new media companies in Finland are members of the *multimedia section of S.A.T.U.* The section had twenty-one member companies in 1997 with a total turnover of 59 million FIM (10 million ecu). They get their assignments from other enterprises and thus the *59 million FIM* (*10 million ecu*) can be regarded as the value of the professional multimedia market in Finland in 1997.

Multimedia Special Interest Group (*MSIG Finland*) maintains a register of companies engaged in new media. At the beginning of 1998 the register listed about 150 companies (MSIG Finland 1998). Only about one tenth of them, however, do play any significant role as to annual revenues.

2.4.6 Offline electronic information supply

CD-ROMs are the main offline media for providing electronic information, either for hobbies and pastime or for professional and business purposes. The market for all kinds of CD-ROMs in Finland has shown a rapid increase in the recent years and indeed tripled in 1996 in comparison to the previous year, to a total of 150 million FIM; cf. Table 5. Nevertheless, CD-ROMs account for a mere one percent share of the total mass media market in Finland.

Bookstores in Finland are a major outlet as sales channels of electronic media such as CD-ROMs. They are also for sale in stationery and phonogram departments of big supermarkets and via kiosks. Most CD-ROMs originate from abroad, Finnish products take about 20% of sales but the share is increasing. Members of the Finnish Book Publishers' Association sell most of the CD-ROMs for useful/professional purposes. Education and non-fiction comprised 94% of the titles and 96% of the sales of domestic CD-ROMs and other offline multimedia products sold by members of the Association in 1997 *(Sauri & Kohvakka 1999, p. 228).*

Offline media take less than 10% of the markets for online and offline electronic information services for professional business purposes. An estimate rates the total market for CD-ROMs in 1997 to approx. 200 million FIM (34 million ecu). Some 65% (130 million FIM = 22 million ecu) of that fall to games and appr. 35% (70 million FIM = about 12 million ecu) to CD-ROMs for other, more "useful" purposes. About half of this share would really be for professional business purposes, i.e. *35 million FIM* which equals to about *6 million ecu*. According to another expert estimate, the market of CD-ROMs for professional purposes in 1997 would have ranged from 10 to 20 million FIM (1,7 to 3,4 million ecu). Anyhow, the corresponding share of the CD-ROM market will increase rapidly in the future since ever more households buy multimedia PCs.

Table 5. Sales of CD-ROMs in Finland, million FIM (Sauri & Kohvakka 1998, p. 34).

Year	*Sales, million FIM*	*Percentage*
1994	20	
1995	50	
1996	150	
1997 (estimate)	200	100
Of which: - games etc.	130	65
- other, useful or professional purposes	70 (35 + 35)	35

An estimate states that CD-ROMs for any kinds of useful/professional purposes account for a fifth of the Nordic market for CD-ROMs. The average in Finland is about one third of the CD-ROM market and thus greater than in the other Nordic countries. The share of "professional" or "useful" CD-ROMs of the total CD-ROM market is increasing. Note, however, that any grouping between useful and not-useful or entertainment CD-ROMs goes on a sliding scale – we may even see the difference vanish in the coming years.

The star of the future, DVD (digital versatile disc) has a multifold storage capacity compared to a CD-ROM system. Though first marketed as a substitute for video, DVD can be used for storing all kinds of digital information. In addition to consumer market, it has a very strong potential for professional market (Sauri & Kohvakka 1998, p. 35). Finally reaching an international agreement about a standard for a recording digital versatile disc will mean converging video recordings, CD discs and CD-ROMs used at present – which, in turn, will bring about a thorough reorganization of the present distribution and sales channels.

Diskette is another offline media used for distributing electronic information. They still have their share of the EIS market – though little by little diminishing. Much of the information formerly distributed on diskettes has been moved over to CD-ROMs or to WWW since 1994. Nevertheless, a rough estimate may be made about the size of the professional diskette market in Finland, of about 13 to *15 million FIM* (*2,2 to 2,5 million ecu*) in 1997.

2.5 Summary of supply

The approach of the Internet has not made it easier to estimate the share of professional information services of the total market for electronic information services (EIS), in terms of turnover, i.e. revenues earned. The word "professional" denotes electronic information services (both online and offline) used mainly for professional purposes in the working places (e.g. an enterprise, a research organisation or a government institution). To distinguish between professional and consumer EIS sometimes is like drawing a line in water. Besides, products or services now used for pastime or entertainment purposes may well pave the way for future use for more "useful" or professional purposes.

An estimate is presented below about the supply of electronic information services for professional or business purposes in Finland in 1997. It is a combination of MSSTUDY II supply survey results and information gathered by desk research from printed and Web sources as well as by e-mails and phone calls. Export estimate is based on the results of the survey and refer only to online hosts. Import estimates are partly based on

information from the central co-ordinating team of MSSTUDY II. The exchange rate used for FIM/ecu in 1997 is 5,881.

Basis for the estimation is given in sub-chapters of chapter 2.4 in the present report. Assessing the Internet market consists of the market value of Internet connections (cf. chapter 2.4.2) of companies and basic services related to them, augmented with universities.

Based on the previous reasoning – and bearing in mind that there are estimates of estimates – one may come to the following conlusion about the supply of electronic information services for professional purposes in Finland:

- Audiotex: 175 million FIM (30 mecu)
- Offline, CD-ROMs: 35 million FIM (6 mecu)
- Offline, diskette: 15 million FIM (2,5 mecu)
- Internet connections: 170 million FIM (29 mecu)
- Multimedia: 59 million FIM (10 mecu)
- Telematic services: 36 million FIM (6 mecu)
- Domestic online hosts: 227 million FIM (39 mecu); includes estimation of exports.
- Imports (foreign online hosts): 282–294 million FIM (48–50 million ecu).

Without imports, the above estimations total 717 million FIM (122 mecu). Deducting exports (estimation: 30–32 million FIM = 5–5,4 mecu) and adding imports (estimation: 282–294 million FIM = 48–50 mecu) we arrive at a total of about *970–980 million FIM*, i.e. *165–167 mecu*. Such an estimate is, hopefully, likely to give at least a hint of the size and volume of the EIS market for professional purposes in Finland.

It is not possible to make a direct comparison between 1997 estimates and those of 1994 since MSSTUDY I survey about 1994 consisted of a different segmentation of supply.

3. Demand survey: usage of electronic services in private households, at work or at school

3.1 Methodology and user population

Demand for electronic services in Finland was surveyed by computer-aided telephone-interviews (CATI methodology), a common recommendation to all the countries participating in MSSTUDY II. The sample was 3000 randomly selected persons aged 15 to 74 who were interviewed in September, 1998. Responses were obtained from 2721 persons selected for the sample, i.e. the response rate was almost 91%. Statistics Finland collected the data in the framework of the national Labour Force Survey (LFS). The total monthly sample for LFS is 12000.

The study aimed at establishing to what extent personal computers are used at home, school and work, how many PCs are connected to the network and what kinds of electronic services different population groups use. The survey questionnaire is Appendix C.

The results of the interview survey examining the demand of electronic services reported here represent figures weighted against the total population. Table 6 shows a summary of the characteristics of the respondents.

3.2 Results of the demand survey

3.2.1 PC usage in private households, at work and elsewhere

In all, 63 per cent of respondents had access to a personal computer. Nearly all aged 15 to 17 could use a PC; boys only little more often than girls. About three in four person aged 18 to 49 had a PC available somewhere. Differences between men and women were small, and women in some age groups had access to a PC even more often than men. Almost all students and schoolchildren had access to a PC, four in five employees and almost two in three self-employed persons reported that they had access to a PC. In contrast, only 13 per cent of pensioners had a possibility to use a PC.

Table 6. Characteristics of the respondents of the Finnish demand survey (Statistics Finland).

		Total (unweighted)	***Total (weighted)***		
Total	***absolute***	***2721***	***3881102***		
	in %	***100***	***100***		
Gender (%)	male	1305	1929265	49,7	
	female	1416	1951837	50,3	
	no answer			0,0	
Age groups (%)	15-17	164	203126	5,2	
	18-24	347	449983	11,6	
	25-34	476	681211	17,6	
	35-49	811	1188212	30,6	
	50-74	923	1358570	35,0	
	no answer			0,0	
Household size (%)	Single	496	721853	18,6	
	2 persons	907	1327188	34,2	
	3 persons	491	701916	18,1	
	4+ persons	823	1124791	29,0	
	no answer	4	5354	0,1	
		2721		0,0	
Employment status (%)	self-employed	208	301879	7,8	
	employed	1234	1790497	46,1	
	temporarily unemployed	230	333160	8,6	
	retired	540	791422	20,4	
	not working	99	132402	3,4	
	in education	396	512587	13,2	
	no answer	14	19155	0,5	
		2721		0,0	
Position of employees (%)	high/Top	280	415964	10,7	22,7
	middle	492	712333	18,4	39,9
	other	456	654061	16,9	37,0
	no answer	6	8138	0,2	0,5
		1234			100,0
Educational level (%)	university	217	332558	8,6	
	graduation	707	1010760	26,0	
	other	1797	2537784	65,4	
	no answer			0,0	
		2721		0,0	
Household net income in ECU	4000 +	82	124049	3,2	
	2500-3999	408	602011	15,5	
	1250-2499	950	1356720	35,0	
	750-1249	520	756260	19,5	
	<750	334	470303	12,1	
	no answer	427	571760	14,7	
		2721		0,0	
Self-employment, kind of work (%)	profess.			0,0	
	owner			0,0	
	other				
	no answer				

Still in education (%)	school	158	196177	5,1	39,9
	university	113	157342	4,1	28,5
	other	125	159068	4,1	31,6
	no answer			0,0	0,0
		396	512587		

3.2.1.1 PC usage at home

About 40 per cent of Finns aged 15 to 74 had access to a PC *at home*. There were no great differences between men's and women's home usage of PCs; 43 per cent of men and 39 per cent of women had access to a PC at home. At the end of 1996, one third of persons aged 10 to 74 had access to a PC at home (Nurmela 1997).

There are considerable differences between age groups. Of boys aged 15 to 17 as many as 74 per cent had a PC available at home, of girls 68 per cent. Older groups have home access less often.

Every second person living in a single or two-person household had access to a PC. Four in five persons living in four-person or larger households had access to a PC and four in five of them at home.

If a PC was available somewhere, self-employed persons and pensioners typically used it at home, two thirds of students could also use a computer at home. 67 per cent of those with a university degree, 54 per cent of those with upper secondary qualifications and 32 per cent of those with basic level qualifications had access to a computer at home. The higher the income, the more certain the respondent was to have a PC at home.

Almost all students at educational institutions reported they could use a PC. 75 per cent of school children, 69 per cent of university students and 47 per cent of those studying at different educational institutions were able to use one at home.

3.2.1.2 PC usage at work and elsewhere

As many as 1.8 million of the 15 to 74 year-old Finns had access to a PC *at work or place of study*, which is about 46 per cent of the whole age group and 74 per cent of those using a PC somewhere. Two thirds of those under 25 years of age had access to a PC at school or work. In older age groups the use of a computer at work was less usual; the trend is similar to that in home usage. Seventy-eight per cent of all employees had access to a PC and 85 per cent of them at work. Almost all managers and salaried

employees were able to use a computer at work, while this was the case for only one in three other employees.

Hundred thousand persons aged 15 to 74 used a PC *outside home or work*, which is about two per cent of the total age group and four per cent of all PC users. Users outside home and work belonged to the group of unemployed, pensioners and other persons not in the labour force, e.g. homemakers. Single persons also used PCs elsewhere (e.g. at *libraries*) relatively more often than others. Since 80% of all public libraries offer Internet access to their clients, theoretically almost every Finn has an access. For various reasons the capacity does not allow everyone to use that access whenever they want; and not every Finn insists services provided by the Internet. In higher income categories, the use of computers outside home or work was unusual, while people in lower income categories used libraries, net cafés and so on.

3.2.1.3 Non PC usage and future usage

About one third, i.e. 37 per cent of people aged 15 to 74 did not have access to or did not need to use a PC. The number of women was only slightly higher than that of men. There were considerable differences between age groups. The older the age group under study, the higher the number of people not using a computer. The largest groups of those not using computers comprise pensioners, (87 per cent of whom were non-users), unemployed (52%) and self-employed persons (39%). The educational and income levels were lowest for those not using a PC.

Ten per cent of the approximately one and a half million Finns who did not use a computer thought they would start to use a PC at home within the next two years and seven per cent estimated they would use one at work in the near future. Of people not using a computer, men reckoned slightly more often than women that they would start to use a computer at home in the next two years, eight per cent of women and six per cent of men thought they would start to use it at work. Until the age of 50, men were planning to purchase a home computer more often than women, but elderly men as rarely as women; very few over 50 year-olds, 3 to 4 per cent of those not using a PC, were planning to start using a PC.

The larger the household of the respondent, the more likely it was for him he would start using a PC in the next two years. Intentions to purchase were highest in households of four or more persons, a group that already owns several other home computers.

It is unlikely that pensioners will become new users, as only two per cent of those not using a PC thought they would start to use one in a few years' time. In contrast, one in five self-employed persons were planning to start PC usage at home.

Only one tenth of university degree holders were not using a computer and every fifth of them thought they would start PC usage in two years. One half of those with basic level qualifications were using a PC and only one tenth of those not using thought they were going to use one in the near future.

3.2.2 PC network connection

Of people aged 15 to 74 years, 63 per cent had access to a PC, about 41 per cent had access to a home computer. In case the respondent had a computer at home, only about one half (42%) were equipped with a modem or an ISDN connection.

Those using computers at work or place of study were often able to use networks. If the computer was used at work or school, 78 per cent had a network connection and if somewhere else, 56 per cent of computers also allowed access to network services. Only a few of the men aged over 50 could not tell if the computer at work was connected to the network; while there were 2 to 6 per cent of uncertain women in all age groups.

Men and women did not differ greatly in this respect. Men had a computer at home slightly more often and it was more commonly provided with a network connection; 19 per cent of men and 16 per cent of women were able to use the network connections of their home computer, if they so wished.

Figure 1 indicates Internet connection at home PCs as % of age groups, Figure 2 indicates the accessiblity of network connections at work.

If there was a computer at home, the respondents aged over 35 had slightly more often their PC connected to the network than younger persons had.

Single persons, who have fewer home computers, slightly more often did not have a network connection than those living in larger households did. But in households of over four persons, where two in three have a home computer, only less than 44% had a modem or an ISDN connection.

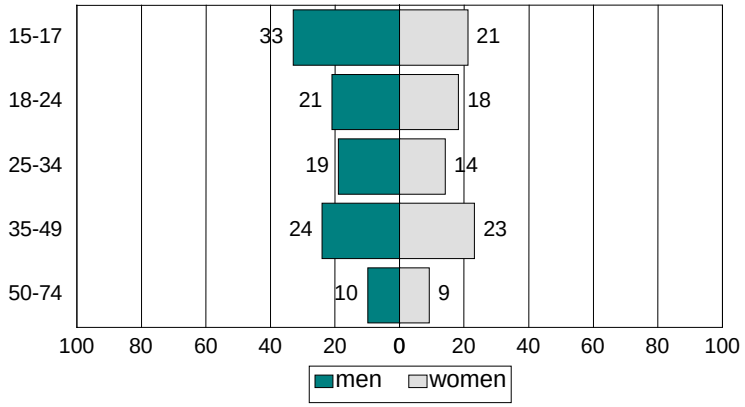

Figure 1. Internet connection at home PCs, percentage of age group (Statistics Finland).

Two of three home computers of pensioners and unemployed did not have a network connection. Those in managerial position and salaried employees had both at home and work a PC enabling usage of network services more often than other employees. Educational level is not as clearly visible in the accessibility of network services with home computers, while every fifth of those only with basic level qualifications who use a computer at work do not have a network connection.

When considering the income level, the results are similar to those obtained in previous surveys. Those in the highest income categories have more often home computers provided with a network connection.

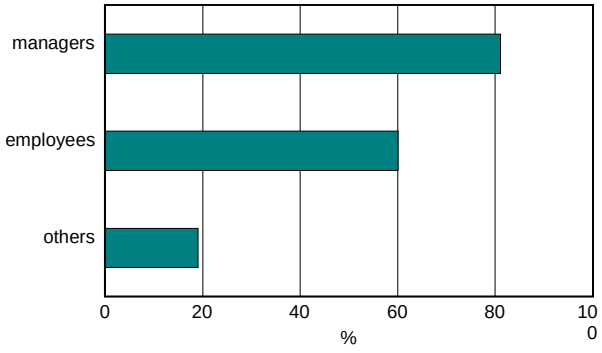

Figure 2. Accessibility of network connections at work (Statistics Finland).

3.2.3 Usage of electronic services in private households, at work and elsewhere

3.2.3.1 Usage of elecotronic services at home

Figure 3 below shows home users of Internet connections as a percentage of those with connection. Table 7 indicates access to PC and frequency of Internet use at home by age and sex. Three in four of persons aged 15 to 74, whose home computer had access to information networks, used electronic services at home (13 per cent of all 15 to 74 year-olds). One in three women with a network connection at home did not, however, use network services.

Thirty-seven per cent of the over 300,000 men using electronic services at home used them daily. Just 21 per cent of the 200,000 such women were daily users. Cf. Table 7.

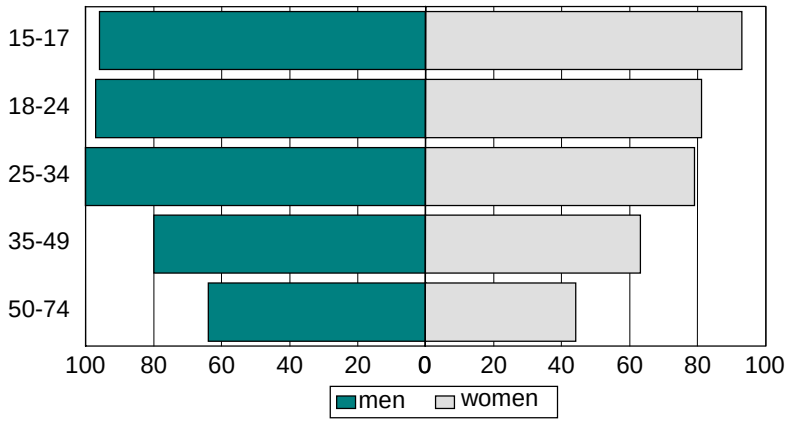

Figure 3. Home users of Internet connections, percentage of those with connection (Statistics Finland).

Young people with home computers and network connections in them also used network services. Only good one half of those aged over 50 with a network connection in their home computer used electronic services. But this group does not differ significantly when viewing the usage frequency of others aged over 25; over 70 per cent of those aged over 50 employing electronic services at all used them at least once a week.

If single persons have a network connection in their home computers, they also make use of it; 93 per cent used electronic services at least weekly. In larger households the respondents did not often use the network connection at all, or used the services less often than once a month.

Those in managerial positions and higher salaried employees had a home computer with a network connection more often than others. They also used electronic services more commonly. However, there were no differences in the frequency of use; if other employees used electronic services at all, they used them as often as those in managerial positions. The same applies for educational level. If the household's total income exceeds ECU 4,000, more than one half of home PCs are provided with a network connection and 86 per cent of the respondents use them. If the household's income remains under ECU 1,250, only fewer than one tenth has a network connection at home. However, they use electronic services more and more often than those in higher income categories.

Table 7. Access to PC and frequency of Internet use at home by age and sex (Statistics Finland).

	Sex/Age												
		Total		*15 - 17*		*18 - 24*		*25 - 34*		*35 - 49*		*50 - 74*	
	Total	male	female	male	female	male	female	male	female	male	female	male	female
Access to PC, % of age group	63	64	61	98	96	79	85	76	74	71	76	39	32
PC at home, % of age group	41	43	39	74	68	48	53	45	40	51	54	27	19
Home PC with Internet connection,% of age group	17	19	16	33	21	21	18	19	14	24	23	10	9
Uses Internet connection, % of those with connection	76	85	66	96	93	97	81	100	79	80	63	64	44
% of Internet users:													
- daily	30	37	21	51	31	45	36	32	11	31	13	37	34
- weekly	45	46	44	36	32	46	42	56	45	48	47	34	42
- monthly	15	9	24	10	22	6	18	7	28	10	22	15	31
- less often	11	8	15	3	15	3	4	5	17	11	18	14	17

3.2.3.2 Usage of electronic services at work or place of study

Almost 1.4 million had a network connection available at work or place of study. Over 1.1 million of them, four in five used the connection as well. This is about 30 per cent of all those aged 15 to 74.

Almost one million persons aged 15 to 74 used network connections at work or place of study at least once a week. The number of daily users is more than 600,000. The same

pattern as for home use is visible in the age group distribution for usage of network connections at work or place of study. If a network connection is available, it is also used. Only seven to nine per cent of men aged 15 to 24 did not use network connections at work, while the corresponding figure for women was 12 to 13 per cent.

Usage of electronic services at work or place of study is more regular than at home; almost two in three users of network service aged over 25 used the services daily. In contrast, young people under 25 surfed the network at work or place of study less often than those in the older age groups.

Every second employee had access to electronic services at work, and four in five made use of it and almost all at least weekly. Only 16 per cent of self-employed persons had network access at work and every third of them did not use it. Four in five schoolchildren and students had a network connection at place of study and almost all employed it.

Especially those in managerial positions used electronic services at work, too. More than 70 per cent of them used network services and 90 per cent at least weekly. The educational level has a similar effect; 61 per cent of those with a university degree used network services and more than 90 per cent of them at least weekly. Just one fourth of those with basic level qualifications had access to the network and only every fifth of all employees used electronic services at work, one fourth of them monthly or even less often.

The household's income level correlated clearly with access to network services at work or place of study as well. The higher the total income of the household, the more people were able to use services at work or place of study. Those in the highest and lowest income categories made use of network connections slightly more often than those in the middle categories.

3.2.3.3 Usage of electronic services outside home and work or place of study

Of those 54,000 using a network connection at computers elsewhere, 61 per cent employed electronic services. Two thirds of those using computers elsewhere were men. Those using electronic services elsewhere were usually aged between 18 and 34. The number of unemployed was high among those using electronic services elsewhere, one third of all users. Almost all users were without qualifications or degrees and very few of them were living in households with an income of over ECU 2,500.

3.2.4 Usage of CD-ROMs

Altogether 2.4 million Finns aged 15 to 74 had access to a computer and less than every fifth also used the electronic services of CD-ROMs. Playing CD-ROM games is not included in the survey, but listening to music, for example, was not excluded.

Around 460,000 persons used CD-ROMs at their home computer, 440,000 used at work or school and 20,000 elsewhere. Two in three of those using CD-ROMs elsewhere searched information for their private purposes. In 1996, about 650,000 persons used the CD-ROM drive in home computers; the most popular purpose of use, playing games was not included in this MSSTUDY inquiry.

Men used CD-ROMs at home, work and elsewhere more often than women. More than one half of those using CD-ROMs elsewhere were working; but those using CD-ROMs elsewhere included, in proportion, the highest number of 18 to 34 year-olds, single persons, unemployed or those not in the labour force and from low-income households.

3.2.5 Types of electronic services used in private households

About half a million Finns aged 15 to 74 had used various electronic services at their home computers. It is only 13 per cent of all those aged 15 to 74. Table 8 shows the use of electronic services at home computers by the respondent's principal activity.

The majority (60%) of the home users were men. The younger the age group, the higher was the number of service users. Of all employees, those in managerial positions use the services most.

3.2.5.1 Communication services

About 340,000 persons had used electronic communication services at home computers, and the majority of them had used electronic mail. Around 333,000 Finns had used e-mail at home. They account for fewer than nine per cent of the total population aged 15 to 74. About 80,000, most of them (around 67,000) men, followed bulletin boards or took part in newsgroups. The number of schoolchildren and students was approximately 33,500, or about 40 per cent of all those following bulletin boards or taking part in newsgroups.

Young people under 25 were the most active users of communication services, but only one fifth of them used them at home. Only three per cent of over 50 year-olds used e-mail. Only one per cent of pensioners, 10 per cent of employees, 13 per cent of self-

employed persons and 19 per cent of students and schoolchildren used electronic communication services. Educational and income levels had an effect on the use of the services. Around hundred thousand students or schoolchildren used services at home, accounting for nearly 30 per cent of all home users of communication services.

Table 8. Use of electronic services at home computers by principal activity (Statistics Finland).

		Employment Status					
	Total	*Self-employed*	*Employee*	*Temporarily unemployed*	*Pensioner*	*Not working*	*In education*
PC available	2,432,000	185,000	1,404,000	160,000	104,000	69,000	498,000
Percentage	63	61	78	48	13	52	97
PC access at home	1,596,000	154,000	852,000	107,000	88,000	50,000	331,000
Percentage	41	51	48	32	11	38	65
Network connection at home	668,000	70,000	393,000	30,000	23,000	19,000	128,000
Percentage	17	23	22	9	3	14	25
Usage of Electronic Services	509,000	47,000	292,000	19,000	11,000	16,000	120,000
% of those with connection	76	67	74	62	49	85	93
Percentage of those using Internet:							
Communication Services	344,000	81	61	73	69	42	82
- E-mail activities	333,000	78	59	73	69	42	79
- Bulletin boards/news-groups	81,000	12	21	9	28	21	34
Electronic Information Services	442,000	91	82	92	100	83	98
- subjects of interest	410,000	81	75	86	100	66	96
- Documents, newspapers	237,000	46	42	63	54	43	57
Transaction Services	398,000	97	76	76	82	77	76
- electronic banking	324,000	95	68	52	82	61	42
- electronic shopping	83,000	27	13	14	16	8	21
- software downloading	184,000	38	25	61	35	25	61
- booking tickets	59,000	15	15	7	16	0	5
Entertainment Services	73,000	6	8	7	16	8	35
Education Services	61,000	3	10	29	16	16	17

3.2.5.2 Electronic information services and transaction services

There were about 440,000 users of *electronic information services* at home computers, i.e. 11 per cent of all population aged 15 to 74. A total of 410,000 followed various subjects of interest. About one fourth of young people, one fourth of those with a university degree and 42 per cent of those belonging to households in the highest income category used electronic services at home.

Around 400,000 persons had used electronic *transaction services*. Their number was ten per cent of all population aged 15 to 74. The most general type of service used at home was *banking services*, which were used by 320,000 persons. Users of banking services were mainly aged over 25, working and from the highest income categories. People who had made purchases from the network were very young, students, often single persons and belonged to higher income categories than average. About 72,000 of those who had downloaded software were students and schoolchildren, accounting for 40 per cent of the total.

3.2.5.3 Entertainment services and education services

More than 70,000 persons aged 15 to 74, about 2 per cent of all Finns and 14 per cent of those using electronic services at home, played games online or enjoyed other entertainment at their home computers. Three in four users were men and over 60 per cent were under 25. Two thirds of them lived in a household of more than three persons.

Approximately 60,000 had used electronic services for their studies, i.e. 12 per cent of all users of electronic services. More than one half of them was aged 25 to 49 and about one half were working. Those studying at various educational institutions did not use the network at home for educational purposes.

3.2.6 Types of electronic services used at work or a place of study

Around one million hundred thousand Finns had used various electronic services at work or school. It is about 30 per cent of all people aged 15 to 74. More than half of the users, (55%) were men. The figure includes nearly 400,000 students and schoolchildren. There were clearly more users in younger age groups, but about one third of those aged 25 to 49 used electronic services at work. Almost 40 per cent of all employees had used electronic services available via the network at work. The proportion of use among those in top and middle management was five to eight times greater than that of other employees. Table 9 clarifies usage of electronic services at work or a place of study, indicating usage of electronic services at work or a place of study by the respondent's sex and principal activity.

Table 9. Usage of electronic services at work or place of study (Statistics Finland)

	Total	Sex		Principal activity		
		male	female	self-employed	employee	student
PC at work or place of study	1,799,000	900,000	898,000	85,000	1,191,000	466,000
Percentage	69	65	72	28	66	91
PC with Internet connection	1,398,000	705,000	693,000	48,000	885,000	433,000
Percentage	54	51	55	16	49	84
Uses Internet connection	1,158,000	600,000	558,000	33,000	706,000	393,000
Percentage of those with connection	83	85	81	69	80	91
Percentage of those using Internet						
Communication Services	796,000	70	67	83	67	71
- E-mail activities	769,000	68	65	83	65	66
- Bulletin boards/ news-groups	170,000	18	10	14	12	18
Electronic Information Services	927,000	83	77	81	72	94
- subjects of interest	823,000	74	68	71	61	89
- documents, newspapers, newsletters	497,000	51	35	44	37	53
- public institutions	540,000	51	42	33	48	44
- online database and other EIS	428,000	42	32	50	36	39
Transaction Services	483,000	50	32	81	43	36
- electronic banking	259,000	26	19	73	29	7
- real-time financial information	146,000	14	11	15	16	7
- electronic shopping	81,000	10	5	23	5	8
- software downloading	231,000	31	8	28	15	28
Education services	126,000	10	12	4	9	14
Other electronic services	81,000	9	5	12	8	4

3.2.6.1 Communication services

About 800,000 persons had used *electronic communication services* at work or place of study, and almost all of them had used e-mail. Around 170,000 followed bulletin boards or participated in newsgroups, most of whom, about 110,000, were men. About 76,000 students and schoolchildren followed bulletin boards, accounting for almost 45 per cent of all those following bulletin boards or taking part in newsgroups.

Young people under 25 were the most active users of communication services, but the age distribution of those using the services at work or school was more even than that of home users. Twenty-six per cent of all employees, nine per cent of self-employed persons and 54 per cent of students and schoolchildren used communication services at work or school. Educational and income levels had an impact on the use of the services

both at work and home. Less than 300,000 students or schoolchildren used services at school, accounting for good one third of all users of electronic communication services at work or school.

3.2.6.2 Electronic information services, transaction services and education services

About 930,000 persons, i.e. 24 per cent of the total population aged 15 to 74, had used *electronic information services* at school or work computers. 820,000 followed various subjects of interest, 500,000 read newspapers and other such publications, 540,000 contacted public institutions and 430,000 used online databases or other electronic information services. About three thirds of students and schoolchildren and one fourth of all employees had used electronic information services.

Around 500,000 had used *electronic transaction services* at school or work computers, accounting for 12 per cent of the total population aged 15 to 74. The most generally used type of service was banking services, used by 260,000 at place of work.

There is not much difference between users of electronic transaction services at work and home. The users of banking services were mostly aged over 25 and in the highest income categories. People who had made some purchases from the network were very young, students, usually single and, differing from homebuyers, belonged to lower income categories than average. Almost one half of the total of those who had downloaded software from the network was students and schoolchildren.

About 126,000 had used *electronic services for studies* at work or school, which was 11 per cent of those who had used electronic services. More than one half of them was aged between 25 and 49. Nearly one half of those who used the network for educational purposes, about 56,000 persons, studied at various educational institutions.

3.3 Summary

The only reliable way of measuring the usage of Internet is to conduct user surveys. Counting hosts implies to technical aspects and countrywise statistics on host counting is even questionable. In all, almost 2.5 million persons, 63% of people aged 15 to 74, had access to a personal computer. Ten per cent of those about one and a half million Finns who did not use a computer estimated they would start home use within the next two years and seven per cent thought they would use one at work in the near future.

If the respondent had a computer at home, only about one half were provided with a modem or an ISDN connection. If a computer was used at work or school, 78 per cent had a network connection. Almost 700,000 respondents could, if they so wished, access information networks at home, nearly 1.4 million at work and good 50,000 elsewhere.

About 500,000 persons used electronic services at home computers. A total of 1.1 million used network connections at work or place of study and 33,000 used electronic services elsewhere. About 384,000 used services at home at least weekly and good 55,000 less often than once a month. Almost one million of 15 to 74 year-olds used network connections at work or place of study at least once a week. The number of daily users was over 600,000. Table 10 summarizes users of electronic services and types of services used.

Table 10. Summary of users of electronic services and types of services used (Statistics Finland).

	Total	*At home*		*At work or place of study*	
	Number	*Number*	*% of those aged 15 - 74*	*Number*	*% of employees and students*
Users of electronic services	1.338,000	509,000	13	1,158,000	44
Users of communication services	939,000	344,000	9	796,000	30
- E-mail	910,000	333,000		769,000	
- Bulletin boards/newsgroups	216,000	81,000		170,000	
Users of information services	1.112,000	442,000	11	927,000	35
- Subjects of interest	1.106,000	410,000		823,000	
- Newspapers, etc.	618,000	237,000		497,000	
- Public institutions	667,000	251,000		540,000	
- Online databases, etc.	534,000	213,000		428,000	
Users of transaction services	724,000	398,000	10	483,000	18
- Electronic banking services	493,000	324,000		259,000	
- Real-time financial information	199,000	71,000		146,000	
- Electronic shopping	155,000	83,000		81,000	
- Software downloading	341,000	184,000		231,000	
- Booking tickets	59,000	59,000		..	
Games and entertainment	73,000	73,000	2	..	
Study	162,000	61,000	2	126,000	5
Other services	106,000	31,000	1	81,000	3

Around one and a half million Finns, 13 per cent of all aged 15 to 74, had used various electronic network services *at their home computers*. About 9% had used electronic communication services at home computers, and most of them were e-mail users. About 10% had used electronic transaction services. Banking services was the type of service most generally used at home.

Approximately one million hundred thousand Finns, about 44% per cent of all persons working or studying, had used various electronic services *at work or school*. As school use and work use are treated separately in the question, the figure includes nearly 400,000 students and schoolchildren. About 30% used electronic communication services at work or school computers, and almost all of them used e-mail. Around 35% used electronic information services at school or work computers.

The general pattern for using the Internet and the intensity of using electronic services in this MSSTUDY II survey resembles other surveys in Finland. The concept for identifying different electronic services in this MSSTUDY differs, however, from the other surveys and the results differ – even quite a lot in some cases. More precise terminology both on the international and national level would be necessary.

3.4 Other surveys

Two Finnish research institutes, Taloustutkimus and Gallup-Media, carry out continuous Internet monitoring. Abstracted information about the results of their surveys is available via the Internet.

Gallup-Media is part of Suomen Gallup Oy, the MDC Helsinki Group, providers of a wide range of market and media research surveys. Internet users are surveyed regularly by Gallup's media research (http://www.mdc.fi/mediatut.htm).

Taloustutkimus Oy is another market research company with regular monitoring. Internet tracking is a quarterly survey since the autumn of 1995. Web pages in Finnish about Internet tracking are at URL: http://www.toy.fi/tuotteet/Internet/inet6.htm and in English http://www.toy.fi/tuotteet/Internet/inet1e.htm. Web Traffic Monitor is a browser-based measurement method where subscribers have direct access to reports about their own Web pages. General information about average weekly usage per month is available to all via the Internet (http://www.toy.fi/tuotteet/wtm/wtmresults.htm).

The main object of Taloustutkimus Internet tracking is similar to that of MSSTUDY II demand survey: the demographics of the users, as well as awareness and usage of the Internet. Recent results confirm a distinct yearly increase from January–February 1998

to Jan.–Feb. 1999 in the amount of users. According to Taloustutkimus, daily or almost daily usage of the Internet increased by 63% in a year and weekly usage of the Internet at home almost doubled in a year (increase 96%); cf. Table 11.

Table 11. Internet tracking, changes in the amount of users (Taloustutkimus Oy 1999b).

Type of using the Internet	*No. of users, Jan.–Feb. 1998 x)*	*No. of users, Jan.–Feb. 1999 x)*	*Change in one year, %*
At least weekly	763,000	1,171,000	+ 53
Daily or almost daily	370,000	602,000	+ 63
At home weekly	333,000	654,000	+ 96
At work weekly	351,000	500,000	+ 42
At school or university weekly	256,000	333,000	+ 30

x) = weighted figures, the corresponding population in the age group of 15–74-year-old, based on a sample of 3009 in Jan.–Feb. 1998 and 3019 in Jan.–Feb. 1999

4. Overall electronic information services market in Finland

4.1 Main results of supply

Finland produces about 300 databases, one third of the total of Nordic databases. Finnish databases are produced by about 160 producers and made available by 90 hosts. Traditionally, database producers have been university libraries and other non-profit organizations. There are about a dozen major online hosts of commercial significance in Finland. Mostly, being an online host or other provider of electronic information services (EIS) for professional purposes is not the main activity of any organization. Providing printed or other information products is the main activity.

Organizations responding to the supply survey employed an average of 25 persons in EIS activities. This may indicate that the importance of information service activities has again been realized since the recession slowed down.

Finland is an importer of electronic information. There are only a few major exporters of online EIS. The main market is in the European Union countries. Finnish suppliers make most of their revenue, however, in the domestic market. Businesses are the main users, and financial service (banking, insurance etc.) the prime user of EIS, mainly using real-time financial and newswire services.

Results of the supply survey were not comprehensive enough to get an overall view of the supply of EIS in Finland. They were therefore supplemented by relevant desk research and other means of gathering additional information. – The turnover of domestic online hosts, including exports, is estimated at 227 million FIM.

Two operators dominate audiotex supply in Finland. Audiotex services are no great business to the operators. A great number of former audiotex services have been transferred to the World-Wide Web. Audiotex supply in 1997 is estimated at 175 million FIM. – Interactive open information networks, telematic value-added networks, were mostly used for banking and business-to-business electronic markets. Supply of telematic networks for "useful" or more professional purposes is estimated at 36 million FIM.

In the Internet market, it is the business users who count. There are a number of operators in the market, and about seven key commercial players. Besides, FUNET (Finnish University and Research Network) is a network service for universities, polytechnic colleges and the research community. Over 90% of companies with more

than 100 employees have Internet access. Several estimates have been made about the Internet market in Finland. The whole market includes hardware, software, IT services and connection services. Connection services are considered in the MSSTUDY approach. Companies denote the major share of connection services. Internet connections (WWW) have been estimated at 170 million FIM.

New media (multimedia) companies typically are SMEs with a small turnover, concentrated in southern Finland and specialists involved in new media only. The growth rate of the business has been enormous and the branch is expected to grow to a billion FIM business in the next few years. Big publishers have also entered the communications market by merging smaller new media specialists. In the market of multimedia for professional business purposes, however, members of the multimedia section of the Association of Independent Producers (S.A.T.U) have to be considered. Their turnover in 1997 was 59 million FIM.

Offline media take less than 10% of the total market for online and offline electronic information services. CD-ROMs are the main offline media and the market for all kinds of CD-ROMs has rapidly increased in Finland in the recent years, indeed tripled from 1995 to 1996. Diskettes, though still an important media, are gradually losing their market share. CD-ROMs and diskettes in 1997 accounted for 50 million FIM.

Distinguishing between professional and consumer EIS often is like a drawing a line in water. Products or services now used for pastime and hobbies may pave the way for future uses for more professional business purposes. Bearing in mind all ambiguities in definitions it is possible to estimate the total professional-purpose EIS market in Finland in 1997 to 980 million FIM (167 mecu).

4.2 Main results of demand

Demand for electronic services was surveyed in September, 1998. The sample was 3000 randomly selected persons aged 15 to 74 and data was collected in the framework of the national Labour Force Survey, LFS (total monthly LFS sample is 12 000). The response rate was almost 91%. The unweighted sample corresponds to the weighted total of about 3,8 million Finns.

PC usage in private households, at work and elsewhere

In all, 63% of respondents had access to a personal computer. About 40% of Finns aged 15 to 74 had a PC at home. There are no great differences between men's and women's home usage of PCs, but there are considerable differences between age groups. Young people aged 15 to 17 most often have a PC available at home, older groups less often.

About 46% of the age group 15 to 74 had access to a PC at work or place of study, which is 74% of those using a PC somewhere. About one third of the whole age group did not have access to a PC.

Three in four persons aged 15 to 74, whose home computer had access to information networks, used electronic services at home (13% of all aged 15 to 74 years). – Those using computers at work or place of study often were able to use networks, too. Those in managerial position and salaried employees had both at home and at work a PC enabling usage of network services more often than others. However, there were not differences in the frequency of use at home. Those in the highest income categories have more often home computers provided with a network connection. Also, the higher the total income of the household, the more people were able to use services at work or place of study.

Usage of electronic services

Almost a fifth (17%) had a home PC with Internet connection. Of those with Internet connection, 30% used the Internet daily and 45% weekly. Usage of electronic services at work or place of study is more regular than at home. Every second employee had access to electronic services at work, four in five used it and almost all at least weekly.

Half a million Finns aged 15 to 74 used various electronic services *at home*; it is only 13% of all those in the age group. Around 333 000 Finns used e-mail at home, i.e. fewer than 9% of the total population. Schoolchildren and students account for 40% of those who follow bulletin boards or take part in newsgroups. They also account for 30% of all home users of communication services. Young people in general are the most active users of communication services, but only one fifth of them at home.

As to electronic information services, 11% (440 000) of all population used them at home computers; a total of 410 000 followed various subjects of interest. About 400 000 persons, 10% of all population aged 15 to 74, used electronic transaction services. The type of service mostly used was banking services; users were mainly aged over 25, working and from the highest income categories. About 2% of all Finns played games online or used other entertainment services.

About 30% (1 100 000 people) of all population used electronic services *at work or school*, more than half of them men. The figure includes 400 000 students and schoolchildren. About 800 000 persons used electronic communication services at work or place of study, and almost all of them used e-mail. About 24% of the age group of 15 to 74 used electronic information services at school or work computers. Following subjects of interest and reading newspapers were the most popular services. About 12% of the total population used electronic transaction services at school or work computers, and the most generally used service was banking services.

Summarizing users of electronic services and types of services used:

- 13% of the population aged 15 to 74 were users of electronic services
- 9% were users of communication services (e-mail, bulletin boards/newsgroups)
- 11% were users of information services (subjects of interest, newspapers etc., public institutions, online databases etc.)
- 10% were users of transaction services (electronic banking, real-time financial information, electronic shopping, software downloading, booking tickets)
- 2% used games and entertainment as well as electronic services for educational purposes
- 1% were users of other services.

5. Business environment

5.1 Technology infrastructure

Finland with her 5,1 million people is a world leader in telecommunications technology. This phenomenon may have many reasons, e.g. the high educational level and public spending on basic research. Finland is a small and homogeneous nation with a readiness to adopt high technology.

Telecommunications is considered a strategic industry. Telematics applications cover a wide range of fields from transport and educational applications to libraries, from healthcare and assistive technology to the environment as well as language and information engineering. The level of computerisation places Finland among the top ten in the world list. More than two thirds of payment transactions between customers and banks are made electronically. There are 0,47 online banking terminals per 100 inhabitants all over the country, and an increasing number of transactions are made via the Internet. CD-ROM books have been on sale in more than 10 years in major Finnish bookstores, and public libraries are being transformed into community information centres. Scientific and research libraries are in principle open to everybody and widely use online and offline electronic information services.

5.1.1 Equipment

5.1.1.1 Personal computers, CD-ROMs and modems

The number of personal computers in Finland in 1997 was 1,5 million – about 30 PCs per 100 inhabitants. The corresponding amount per 100 inhabitants in 1998 was more than 30 since 150 000 new PCs were sold. The number of PCs in businesses is about equal to the number of PCs at home (cf. Table 12). There were 800 000 PCs in 2,3 million households in Finland in 1997. Year 1998 denoted an increase of 100 000 PCs at home.

Table 12. Number of personal computers at home and in businesses in 1997 and 1998 (ESIS 1999)

	Total number of PCs (end 1998)	*Total number of PCs (end 1997)*	*Number of PCs per 100 inhabitants (end 1997)*
Home PCs	900 000	800 000	15,6
Business PCs	751 000	700 000	13,7
Home & business PCs	1 651 000	1 500 000	29,3

Almost half of the Finns (44%) had access to a PC in 1998 either at home, at work, in school or other educational institute (average 35% in fifteen EU countries, cf. Table 13). About 35% of the population in Finland had access to a personal computer at home. Sales of CD-ROM drives is almost the same as of PCs since a CD-ROM drive is standard equipment in almost all personal computers at home. Only a minor number of CD-ROM equipment is used elsewhere. One fifth of the Finns (21%) in 1997 had a CD-ROM reader at home, compared to only 12% in the previous year.

One in every six Finns (16% of the population) had a modem at home in 1997, one in ten a year earlier. Altogether, one in five (22%) had access to a PC with a modem either at home, at work, at school or in another educational institute, and 23% in 1998. The corresponding average in fifteen EU countries in 1998 was 12%.

Table 13. Access to information technology in 1998, % of population (Sauri & Kohvakka 1999, p. 225) x).

	Finland, %	*EU, %*
Personal computer	44	35
CD-ROM reader	25	21
Modem	23	12
Internet or WWW	31	12

x) access to or usage of information technology from home, from workplace, from place of study

5.1.1.2 Internet

In principle, every Finn has access to the Internet at least via a library PC since most libraries have Internet microcomputers. Using them is free-of-charge to library-goers; Finland has a closely-knit library network within easy reach to almost everybody. In 1998, 31% of the population had access to Internet (12% on an average in fifteen EU countries).

Every third PC in Finland was connected to the Internet in 1997. Finland ranks Number One in the world in relative Internet frequency. The number of Internet connections in Sweden, No. 2, is half of that in Finland. Denmark, No. 3 in the list, has one third of the number of connections compared to Finland, see Table 14.

Table 14. Internet connections per 1000 inhabitants in 1997 (Helin 1998, p. 83).

Country	*Connections per 1000 inhabitants*
Finland	96,6
Sweden	40,2
Denmark	32,8
Switzerland	27,4
Netherlands	25,8
Great Britain	17,6
Germany	14,1
Austria	13,8
Luxembourg	12,2
Belgium	10,7

Table 15 gives a view of the Internet in Finland at the end of 1997.

Table 15. Internet in Finland at the end of 1997 (ESIS 1999).

% of PCs connected to Internet (using host data)	32%
Number of households with Internet access	230 000
Number of Internet hosts (servers)	4 710
Number of Internet hosts (domains)	6 890
Number of access providers	80

The number of Internet servers (hosts) in Finland is a world record (88,1 per 1000 inhabitants) at the beginning of 1998, growth by almost 60% from the corresponding figure (56,2) in January, 1997. A comparison of a number of countries is shown in the Table 16. It is worth mentioning that 500 to 1000 Finnish companies or other organizations have their Internet addresses at .com – and not at .fi domain.

Table 16. Internet servers (hosts) per 1000 inhabitants in 1997 and 1998 (Network Wizards, Internet Domain Survey, http://www.nw.com*).*

Country	*January, 1997*	*July, 1997*	*January, 1998*
Finland	56,23	66,63	88,11
New Zealand	24,76	45,60	66,59
Norway	40,06	48,77	65,67
Sweden	26,84	32,78	36,13
United Kingdom, uk	10,23	15,18	16,95
Germany	8,98	10,87	12,19
Luxembourg	8,99	9,88	10,42

One of every three Finns (29%) sometimes accessed the Internet in 1997 (Helin, p. 83), eight percent used the Internet daily or almost daily. Growth rates in using Internet have so far shown a clear upward trend. Finland has by now, however, reached such a high level of usage that growth is gradually slowing down. The number of those who "sometimes" used the Internet doubled from 1995 to 1996. The growth rate from 1996 to 1997 was 50%. The next increase of 50% took one and a half years (autumn 1997 to spring 1999). In January–February, 1999 about 45% of Finns sometimes accessed the Internet.

Table 17. Top ten Finnish WWW services 1998, in alphabetical order (Sauri & Kohvakka 1999, p. 227).

Name of service	*Description of service*
Alta Vista	Search engine
Eemeli	Search for Finnish e-mail addresses
Ihmemaan Haku	Search engine
Iltalehti	Afternoon tabloid homepages
Ilta-Sanomat	Afternoon tabloid homepages
iNet Haku/iNetKeskuskatu (Tele/Sonera)	Web pages of Internet service provider
Keltainen Pörssi	Classified advertising magazine
Kolumbus (Finnet Group)	Web pages of Internet service provider
MTV3	Commercial TV company homepages
The Finnish Broadcasting Company YLE	Public service TV & radio company homepages

The most popular Web pages have hundreds of thousands of weekly visits to the service (see Table 17), even more than half a million, independent of the page or pages visited. Total number of all page impressions per service provider is millions in the most popular providers. Sonera's iNET Keskuskatu (nowadays Soneraplaza) has 220 000 visitors weekly.

Printed media and the Internet

Dailies denote newspapers that are published four to seven times a week, non-dailies those that are published one to three times a week. The Finnish Newspaper Association lists the number of dailies published in Finland (56) and non-dailies (158). About 40% of dailies in 1997 either had home pages in the Web or a whole Web daily regularly updated and with editional material. About seven percent of non-dailies had Web pages. In 1998 almost all dailies (90% of them) were also published in the Internet, as well as a fifth (20%) of non-dailies, cf. Table 18. Among magazines, trade and business magazines most frequently are published in the Internet, too.

Table 18. Number of Internet newspapers and magazines in Finland in 1997 and 1998 (Sauri & Kohvakka 1999, p. 227).

	Number of titles 1997	*Number of titles 1998*
Newspapers:	33	50
- dailies	22	34
- non-dailies	11	16
Magazines:	91	116
- consumer magazines	26	27
- trade and business magazines	36	62
- opinion journals	8	4
- scientific journals	..	6
- student magazines	14	14
- other magazines	7	3

5.1.1.3 Telephony

There were 5 million telephone lines in Finland in 1997, more than 50% of them conventional, see Table 19. In December 1998, the number of mobile phone lines exceeded that of conventional lines.

Table 19. Telephone lines in Finland in 1996 and 1997 (ESIS 1999).

	End 1996	*End 1997*
Total number of conventional lines	2 813 000	2 803 145
Total number of ISDN lines (subscriptions)	27 200	57 855
Total number of mobile phone lines	1 502 003	2 162 574
Total number of lines	4 342 203	5 023 574
Lines per 100 inhabitants:		
- Conventional lines	55	54,8
- ISDN lines (subscriptions)	0,53	1,13
- Mobile phone lines	29,4	42,3
- Total number of lines per 100 inhabitants	84,9	98,2

The first NMT phones (NMT = Nordic Mobile Telephone) were launched around mid-1980's. The present GSM system entered the market at the beginning of the 1990's. Real breakthrough of mobile phones in Finland was due to the recession slowing down. Annual growth rate for several years has been dozens of percents (Table 20). With high penetration at present, the growth rate starts to go down. Most European countries are still to experience this phase of development in the mobile phone market.

Table 20. Number of mobile phone subscribers and annual growth rate 1992–1998 (Web pages of the Ministry of Transport and Communications).

Year	*Subscribers*	*Annual growth, %*
1992	386 021	
1993	489 174	27
1994	675 565	38
1995	1 039 126	54
1996	1 502 003	45
1997	2 160 979	44
1998	2 883 841	33

In 1997 as many as 42% of the population of Finland had a mobile phone. There were still slightly more conventional telephone lines that year. The current year 1999 has clearly again placed Finland No. One as to the number of mobile phones per 100 inhabitants (Table 21). Two out of three Finns has a mobile phone at present.

Table 21. Mobile phones, % of population in 1999 (Baker 1999).

Country	*Mobile phone lines*
Finland	58%
Norway	49
Sweden	46
Japan	37
Italy	36
USA	26
United Kingdom	22
France	19

GSM has a growing share of the market. ARP is to close down totally at the end of 1999. NMT decreases in numbers and the NMT-900 network will be closed down at the end of 2000. Next generation systems will then enter the market. Table 22 presents mobile communication systems in 1997 and 1998.

Table 22. Mobile communication systems in Finland in 1997 ja 1998 (Web pages of the Ministry of Transport and Communications).

Year	*ARP*	*AutoNet*	*NMT 450*	*NMT 900*	*GSM*	*Total*
1997	9 455	4 300	166 615	387 366	1 593 243	2 160 979
1998, Dec. 1	8 960	4 900	138 645	274 990	2 456 346	2 883 841

5.1.1.4 Further factors of technical infrastructure

Electronic Data Interchange, the EDI system is used very little in Finland. Only two percent of companies use EDI, most of them large and medium-sized companies. The most favoured sections of EDI usage are trade or consumer goods, transportation, chemical industry or pharmacies, electronics and insurance. In Denmark, 40% of companies use EDI, mostly in healthcare, retail, banking and financing, shipping and farming (ESIS 1999).

5.1.1.5 Cable TV networks and satellite services

Almost 38% of Finnish households were equipped with cable TV networks in 1997 (35% in 1994). Cable TV covers most of the densely populated centres. In addition to Finnish TV channels, cable TV networks deliver TV programmes by television channels from neighbouring countries as well as satellite channels. Some cable TV companies are also engaged in producing their own programmes, but only to a minor extent. Finland being one of the most sparsely inhabited countries in Europe, cable TV penetration is lower than elsewhere in Europe. Cable television is a significant distribution channel in densely populated and urban centres.

Helsinki Televisio is the biggest cable TV operator with 192 200 subscribers. Helsinki Televisio is part of Sanoma-WSOY, the biggest mass communication corporation in Finland. Next biggest cable TV operators are Telecom Finland Cable TV, Tampereen Tietoverkko Oy, Oulu TV and Turun Kaapelitelevisio Oy.

More than 10% of households are equipped with satellite TV facilities (more than 14% of the households with a television). This figure includes direct to home (DTH) and satellite master antenna television (SMATV). Satellite programmes are also distributed via cable TV networks. Cable TV networks have a penetration rate of 38% of households (47% of households with a television). Eurosport, NBC Super Channel, TV5 Europe and MTV Europe are distributed via most cable television networks.

5.1.2 Mass media market

Mass media denotes 3% of GNP, and the percentage share has remained about the same for years (Table 23). Print media total still has a major share of the market and dominates mass media economy. Finland's per capita consumption of print media has been among the highest in the world for a long time. The share of print media is, however, going through a change – a slow but certain decline. Nevertheless, that is no dramatic change and it can very well be predicted.

Table 23. Mass media turnover in 1996 and 1997, million FIM and % (Sauri & Kohvakka 1998, p. 93).

	1996, million FIM	*1996, %*	*1997, million FIM*	*1997, %*
Dailies x)	4725	26,9	4940	26,8
Non-dailies y)	635	3,6	615	3,3
Free sheets	300	1,7	310	1,7
Magazines and periodicals	3120	17,7	3400	18,4
Books	2110	12,0	2325	12,6
Printed advertising material	1730	9,8	1540	8,4
Print media total	12620	71,7	13130	71,2
Nationwide TV and radio	2615	14,9	2716	14,7
Local radio	180	1,0	190	1,0
Cable television	374	2,1	444	2,4
Online information services z)	415	2,4	440	2,4
Electronic media total	3584	20,4	3790	20,6
Phonograms	675	3,8	725	3,9
Videos	360	2,0	370	2,0
Cinemas	203	1,2	225	1,2
CD-ROMs & other digital offline media	150	0,9	200	1,1
Recorded media total	1388	7,9	1520	8,2
Mass media total	17592	100%	18440	100 %
Mass media as % of GNP		3,1 %		3,0 %

x) = four to seven times a week; y) = one to three times a week; z) = business information services only, aimed at enterprises

Reading newspapers is considered important – time spent in reading newspapers even shows an increase (from 40 minutes in 1996 to 42 minutes in 1998). Time spent in reading books has, however, declined (32 minutes in 1996 and 26 minutes in 1998).

Finns are avid consumers of newspapers and books. Delivery of newspapers and periodicals is mostly based on subscriptions. Almost 80% of magazines and 90% of newspapers are delivered to the subscriber's door. As to circulation of newspapers per 1000 inhabitants Finland ranks third in the world after Norway and Japan (Norway 598 dailies, Japan 580 and Finland 453 dailies in 1997).

Book publishing accounts for the third biggest segment of print media market in Finland. Even during the recent recession, book publishing and book market fared quite well. In book production in 1996 Finland ranked second in the world (26 titles per 10 000 of population) after Iceland (57 titles). Denmark comes closest, with 24 titles.

In 2000, the total volume of digital printing in Finland will amount to 380–460 million FIM (64–77 million euro) (Juhola et al., p. 95). Digital printing is estimated to have a share of 8–10% of all commercial printing in Finland in 2000, i.e. 2,3 times the share it had in 1997.

5.1.3 Telecommunication services and deregulation

5.1.3.1 Telecom operators

A main characteristic of telecom operations in Finland has traditionally been the great number of operators. The first telephone company was established in 1882 in Helsinki. Government joined the team in 1917. State-owned Finnish Post and Telecom built long-distance lines and offered services in the countryside. More than 800 telephone companies operated in Finland in the 1930's (Televiestintätilasto 1997, p. 17). Mergers led to a decrease in the number of operators, and 1997 faced 97 telecom operators, of which 46 were local telephone companies.

Despite dozens of telecom operators in Finland, two strong actors dominate the market. Finnet Group is a coalition of private telephone companies, Sonera (formerly Telecom Finland) is state-owned company. Sonera operates in all fields of telecommunications and competes with local telephone companies. Finnet Group covers 73% of subscribers and 25% of land area in Finland in their traditional operating area. Sonera, Finnet and Telia Finland (former Telivo) are the main players in long-distance and local telephone business as well as in international operations. New operators like FCI Facilicom Finland, Global One Communications and RSL COM Finland challenge them in international traffic competition.

Traditional telephony (local and long-distance telephony and international operations) has 30% of the total market, mobile communications accounts for 30%, other operations 40%. Other operations include e.g. data transmission and media communications, sales of equipment, rents from cable networks and phone booths. The Tables 24 and 25 show the distribution of market shares and different sections of telephony in 1997.

Table 24. Market shares of telecom operations in Finland in 1997, million FIM (Ministry of Transport and Communication, http://www.vn.fi/lm/telemarkkina/tilasto/).

	Finnet	*Sonera/Telecom Finland*	*Telia/Telivo*	*Others*	*Total*
Local telephony	2300	1100	2	-	3402
Long-distance	240	180	11	2	433
International	310	730	48	20	1108
Mobile	1160	3450	-	-	4610
Other	3970	2262	42	39	6313
Total	7980	7722	103	61	15 866
Share, %	50,3	48,7	0,6	0,4	100%

Counting all operators shows that the market shares of different telecom operations in 1997 were as follows: local telephony had a share of 21%, long-distance telephony 3%, international telecom operations 7%, mobile communications 29% and other operations 40%.

5.1.3.2 Deregulation

Telecommunications are regulated through Telecommunications Market Act of 1997. The central policy making body in telecommunications is the Ministry of Transport and Communications which concentrates particularly on infrastructure and other technical matters. Operating under the Ministry, Telecommunications Administration Centre (Telehallintokeskus, http://www.thk.f.i) is responsible for supervision and regulation, including type approvals, standardisation, numbering and allocation of radio frequencies. The Centre also grants Internet domain names ".fi" since June, 1997.

The liberalization of network competition in Finland got under way in 1985 and was completed in 1994. The process of liberalisation in Finland was easier than in many other countries due to traditions of private and publicly owned telecoms carriers. At least two alternative domestic carriers are available all over the country. The competitive situation between two "groups", private and publicly owned, has contributed to the high level of telecommunications technology and services in Finland.

The former Telecommunications Act of 1987 accelerated the liberalisation process by removing exclusive rights and making telecommunications a licensed activity. Several changes took place during a decade (ESIS 1999):

- competition in corporate networks and data transmission partially liberalised in 1988
- telecommunications became subject to free competition in data networks and GSM networks in 1990
- corporate networks subject to free competition, switched data transfer did not require licences any longer in 1991
- local, national long-distance and international telecommunications opened up for free competition in 1994
- data transfer supply freed from telecommunications regulations totally in 1995.

The main new features of the Telecommunications Market Act of 1997 include the following:

- licence required only for constructing a mobile telecommunications network
- special conditions for a network operator with "significant market force" in local telecom services to lease subscriber connections to other companies
- more stringent obligations to a network operator with "significant market power"
- obligation to separate the provision of telecommunications networks and telecommunications services from each other.

5.1.4 Advertising and electronic commerce

5.1.4.1 Mass media and advertising

Mass media accounts for 3% of Gross National Product. Advertising brings in a large amount of money to media companies. Advertising is the main source of financing for free sheets and private local radio and commercial television channels. Newspapers earn 50% of their revenue with advertising. On the other hand, advertising is not a source of financing for books, videos or phonograms. Advertising in mass media accounts for one percent of GNP (Table 25).

In 1997, Internet advertising had 0,2% share of all advertising in mass media. Advertising in mass media from 1997 to 1998 increased by 11% while advertising in the Internet increased by 140%! That means more than doubling its share of advertising in mass media. Nevertheless, the share of Internet advertising was still at a low level of

0,4% of total mass media advertising. Despite of the huge growth rate Internet advertising at the moment is only marginal – it will take a couple of years to see the effect it will have in the distribution of advertising money. Jobs are one of the most favoured subjects for Internet advertising. – Advertising in newspapers has in the recent years shown the lowest rate of growth though a clear growth trend is to be distinguished since mid-1990's.

Table 25. Advertising in mass media in Finland in 1997, percentage shares (Sauri & Kohvakka 1999, p. 33).

Media channel	*Share of total mass media advertising, %*
Newspapers & free sheets	56,5
Television	21
Magazines & periodicals	15,4
Radio	3,5
Outdoor/Transport	3,3
Internet	0,2
Cinema	0,1
Total	100
Advertising in mass media total, FIM million	5200 million FIM
Advertising as % of GNP	0,94 %

Finland is one of the top countries in print media consumption. Print media accounted for 71% of total mass media turnover in Finland 1997; the European average from 1996 is 63% (NIGRA–INTERGRAF 1998, p. 37). Print media also take the largest share of advertising money. Advertising in print media had a 73% share of total mass media advertising in Finland in 1995 while the average in Europe is 59%, in USA 52% and in Japan 40% (Sauri & Kohvakka 1998, p. 315). Compared to Finland's figure of 57%, advertising in newspapers in Germany account for 48%, in the United Kingdom 39%, USA 38% and Japan 29%.

5.1.4.2 Electronic commerce

Electronic commerce, the great driver of Internet usage and electronic markets, still looks forward to its golden age. Companies frequently use the Internet but are slow in utilizing its benefits in commerce. Only Portugal and the Netherlands in Europe are more passive than Finland in this respect. Secure electronic payment methods would be

a booster of electronic commerce, as well as an electronic citizen card which will be available in Finland later in 1999.

Only four percent of all the population (15 to 74 years) in Finland has so far traded in the Internet (Korhonen 1999). Software, books and CDs as well a as equipment for hobbies are the most popular products bought via the Internet. Reserving tickets for cinemas, sports events, concerts etc. is also very popular. Finnish households are very well equipped for electronic commerce and about 41% of the people are interested in buying goods and services via the Internet (Raha ui verkkoon 1998, p. 17).

The latest study about electronic trade (Taloustutkimus 1999a) was made by Taloustutkimus Oy during May–June, 1999 in collaboration with Electronic Commerce Finland (Elektronisen kaupankäynnin yhdistys, ECF). Consumers spent about 85 million FIM (14 million euro) in a month for all electronic trade, including goods and services which can be ordered or bought via the Internet, irrespective of their origin. Will this indicate the coming boom?

The Electronic commerce barometer by ECF shows that 9% of Finnish companies at present offer their products via the Internet (ECF 1998). The business part of the barometer is based on interviews with 500 companies. Sixty percent of the companies had acquired an Internet connection and 28% had their own Web pages. It was possible to order goods or services in 32% of the companies that had Web pages of their own. The most popular method of payment was still traditional invoicing.

A great number of Finns nowadays tend to their banking business via the Internet. Merita for example in spring 1998 had an agreement with approx. 360 000 private customers about banking in the Internet. Merita's network customers access their Internet bank on an average of 1,2 million times a month (Nordbankenin nettipankki... 1998) – a world record in activity and volume. Merita expected the number of Internet customers to increase to half a million during 1998. Osuuspankki and Leonia are also active in the Internet field. Besides telecom operators, banks have noticed the value of Internet channels and are developing their Web sites towards department stores with links for electronic commerce, for instance. Big chains of grocery stores are also investing in facilities for electronic commerce for their customers and expect the value of electronic commerce to grow into a billion FIM business in the next three years. Ultimately, Internet is changing traditional ways of doing business and will have a thorough effect on the structure of commerce in Finland, too.

In 1996, an *Electronic Commerce Research Center* (http://titux1.titu.jyu.fi/sivut/ecrc/) was founded as part of the Information Technology Research Institute of the University of Jyväskylä. The Center provides research, education and consulting services in electronic commerce and is funded by Finnish industry and National Tecnology Agency.

The Center is also closely connectected to MSIG Finland, the Multimedia Special Interest Group.

5.2 Institutional infrastructure

5.2.1 Associations

Major associations in information technology and IT services as well as those in the library and information service branch are briefly presented in this chapter.

5.2.1.1 Associations in information technology and IT services

IT Services Association (*Tietotekniikan Palveluliitto, TIPAL*,http://www.tipal.fi) is the leading Finnish trade association for computing services and software vendors.TIPAL was established in 1974 and consists of member companies with activities in professional IT services, software products, integrated systems, processing services, network services and FM services. Finnish computing services market total in 1997 amounted to 2,3 billion ecu; TIPAL member companies' total domestic turnover (2 billlion ecu) covers about 80% of the market of the branch. Finnish IT market takes a 3% share of the corresponding European market (Germany ranks No. One with a 26% share).

Finnish Information Processing Association (*FIPA, Tietotekniikan Liitto,* http://www.ttlry.fi) was established in 1953 to promote information technology. Today it comprises 25 member societies which jointly have as members about 27 000 persons as well as almost 700 companies and other organizations. Most of the member societies operate regionally to promote professional growth of IT professionals and to provide them with a discussion platform of current issues. One of the key issues of significance to FIPA has been participating in the process of revising relevant Finnish laws, e.g. data security and copyright protection. Another key activity is sponsoring and organizing research projects of national significance in the IT field.

Finnish Information Technology Development Centre (*Tietotekniikan Kehittämiskeskus, TIEKE*, http://www.tieke.fi) emerged anew in 1998. The present TIEKE is a merger of three information industry associations active in promoting co-operation of industry, public administration and users in information technology and data transmission. The associations which had been working in close partnership in the same premises since 1991 were TIEKE itself and the Finnish Data Communication Association (FDCA, Suomen tiedonsiirtoyhdistys, STY) and the Finnish Association for Interactive Network Services (TELMO). The primary mission of TIEKE is to serve its members and

associates as a neutral and non-profit forum in the development of the Finnish Information Society at large. One of its main functions is generating an IT cluster together with national and international partners, to promote networking at all levels of IT industry.

Electronic Commerce Finland (ECF, http://www.ecf.fi) was founded in 1997 to promote, co-ordinate and support the development of electronic commerce in Finland. The association acts as an impartial forum for discussion. Its members include companies, educational institutes and individual citizens. ECF publishes an electronic commerce barometer and organizes an annual seminar.

5.2.1.2 Associations in the library branch and in information services

Finnish Society for Information Services (*Tietopalveluseura*) was founded in 1974 as a network of information professionals and specialists in enterprises, public administration, universities and research organizations, to develop professional skills and to promote the development of field. Is a non-profit trade association for people involved in retrieving, analysing, recording and disseminating information in a variety of forms.

The Society (http://www.tietopalveluseura.fi) today has almost 900 members. It seeks to promote information services, the professional skills of its members and research and publishing in the sector and acts as a general liaison in the field of information. Besides acting as a professional network, the Society seeks to increase general awareness of the information sector, arranges professional training and seminars, issues opinions on matters related to information services, supports research, and co-operates with other Finnish and international organisations in the information sector.

Finnish Library Association (*FLA*, *Suomen kirjastoseura*) is a nation-wide association established in 1910. It has 2,200 personal members, most working in public libraries. It is a professional body and accepts non-librarians as members. The Association's annual budget is 2,6 million FIM (0,45 million ecu) and it has a number of activities. FLA (http://www.kaapeli.fi/~fla/) organises campaigns for libraries, provides political decision-makers with expert information, regularly organises further education courses and theme days, and the nationwide Library Meeting every two years, runs projects with various partners (e.g. with the Ministry of Education concerning libraries and the Internet) and participates actively in topical debates. Current discussions concern the role of libraries in the information society, the development of librarianship and information studies education, and the image and status of library work. The association publishes Kirjastolehti, a monthly magazine with a circulation about 5,000.

Finnish Research Library Association (Suomen tieteellinen kirjastoseura, STKS), founded in 1929, is a learned society with 690 members. Its main concern is to promote library and information services as vital support to research, education and production. STKS (http://www.jyu.fi/library/STKS/) strives to encourage research and development in the field and promotion of the professional skills of those employed in the branch. Like other organizations presented in this chapter, the Finnish Research Library Association also takes an active part in international co-operation. The Association publishes Signum, a membership periodical, various reports and handbooks and the Guide to Research Libraries and Information Services in Finland.

5.2.2 Libraries

Finland in 1997 housed 992 public libraries (main and local municipal libraries). Libraries have traditionally been and still are a most popular and widely used information resource. The Finns and the Danes are the world's most active library-users; the Finns annually borrow an average of 20 books from the library. Half of the population of Finland has a library card, and the number of library visits has gone up by 31% from 1990. In the past few years libraries have, unfortunately, faced drastic cuts in expenditure and closing down of library units. The year 1997 saw 14 libraries less than 1996 and 159 libraries less than 1990 (Kirjastojen tietoverkottumiseen... 1998). Borrowing has increased by 19%, but almost a quarter of all library staff have been displaced and new acquistions have gone down by 27% from the beginning of the 1990's. Three out of four research and municipal libraries offer access to on-line databases to their users; access to CD-ROMs is also a common feature especially in university libraries.

Libraries are well aware of the importance of networking also in their own work processes. There are about seventy library adp clusters which altogether accommodate about 67% of public libraries in 300 out of Finland's 452 municipalities. About 80% of municipal libraries have access to the Internet (Jenu 1998). Rapid IT development does, however, have its reverse sides: government subsidy is inadequate and it is up to the municipalities themselves to finance the operating costs, new software and hardware.

The very purpose of library subsidies is to guarantee libraries' role as significant information centres in the network of cultural services in a civilized society. Financing data and telecommunications should, however, be kept apart from normal library subsidies. Mr. Timo Kuronen states in his laudable report about information resources and democrary (Kuronen 1998) that data and telecommunications is part of a country's usual technological infrastructure. Library subsidies should therefore be put to other purposes, not to IT infrastructure. The Ministry of Education in 1998 appropriated 10 million FIM (1,7 million euro) for libraries' IT networks. In addition, the Ministry

allocated 900 000 FIM (151 000 euro) for library pilots in promoting reading and familiarizing library users with literature.

Home pages http://www.lib.hel.fi/syke/kirjastot/index.html) of public libraries are maintained in the Internet by the *House of Knowledge* project (http://www.lib.hel.fi/tiedontalo/english/index.html). More than half of the public libraries in Finland's 452 municipalities have home pages in the Internet. There are almost seventy WWW catalogues, either covering the library of a single municipality or as a joint venture of several local public libraries. Public Libraries Enterpage, *PULSE* is at http://www.lib.hel.fi/syke/english/. Several versatile – and multilingual – services are available to library users via PULSE, e.g. Ask the Cybrarian at Helsinki City Library (http://www.lib.hel.fi/virkku/).

There are more than 850 *research libraries* (university and other special libraries) in Finland (TILKE), (web bages at http://hul.helsinki.fi/tilke/indexeng.html). The principle of free access to sources of information holds good in Finland: university and other research or special libraries are in principle open to everybody, except for corporate libraries. Public funding for research libraries has been drastically cut off during the past few years with unfortunate effects on acquisitions and the number of staff.

TILKE also maintains a list of Finnish electronic newspapers, serials and magazines on the Web (http://www.helsinki.fi/~hyk_ml/lehdet.htm). There are e.g. links to more than sixty Finnish dailies and other newspapers.

5.2.3 Government institutions and other political bodies

The second Government of Prime Minister Paavo Lipponen has outlined its communication policy contributing to the development of the information society. In legislation, the Government will consider the converging fields of communication services, telecommunications, mass media and information technology. The Government will also strive for creating a well-functioning internal market in the communications market of the European Union and promote export of Finnish telecommunication know-how to countries outside the European Union.

The Governments of Finland and France in a joint statement in 1998 acknowledge that developing information technologies profoundly influence our societies and economies (Joint French-Finnish statement... 1998). The information revolution is a powerful tool in helping us achieve significant societal goals in Europe: promoting access to knowledge, reducing distance, fostering cultural exchange, broadening democracy. It is the responsibility of governments to ensure universal access to information society services and to fight the risks and potential dangers envolved in the development.

Two ministries mainly deal with information society issues, strategies and technology in Finland: the Ministry of Education and the Ministry of Transport and Communications. In addition, the Ministry of Trade and Industry and the Ministry of Finance have their say in relevant matters concerning the information society.

Ministry of Education

The Ministry of Education (http://www.minedu.fi/minedu/ministry/index.html) has overall responsibility for education, science and cultural policies. The priority areas of the Ministry include national life-long learning strategy and the information society initiative as well as training and research relating to it.

Up to now, earmarked money of about 1,000 million FIM (170 million ecu) has been allocated by the Ministry of Education for purposes based on the first Finnish Information strategy. Most of the money has been used for technical framework: for hardware and building the network. Focus will now be shifted from technology towards content. Experience from good previous pilot projects has not, however, been utilized enough.

A new Strategy for research and education was published by the Ministry in April, 1999 (Opetusministeriö 1999). The vision reads: By the year 2004, Finland will be among the leading countries of the world as a knowledge society, as an interactive society. The vision includes six themes:

- information society (IS) facilities for everybody
- IS know-how of educational personnel
- know-how of professionals in information and content industry
- establishing network studies
- electronic publishing, structuring and distribution of research results and educational material
- strengthening the structures of the information society.

The Ministry is planning to make Finland an information society with e.g. a national virtual school and a network university. Educational institutions will continue to play a crucial role in implementing the information society. Half of the teachers will have to be trained in up-to-date pedagogic and technical skills. National projects in electronic publishing will be financially supported, including educational material. It is necessary to guarantee the operational preconditions of scientific and research libraries, to continue with the Finnish Electronic Library (FinELib) and to pay attention to school libraries and to strive for networks of public libraries and libraries of educational

institutes. – Goals of the training and know-how theme e.g. consist of the following: every citizen will have the possibility of using network and new media services, and every citizen will have an e-mail address in 2004. Media literacy, learning to utilize information and communication technology, will be among the goals of the projects for life-long learning.

To make the plans of all six themes come true, it would annually take 300 million FIM (50 million euro) in the next five years, an annual increase of 40 million FIM (6,7 million euro) in information society projects in the Government budget. New foci would be funded for 155 million FIM annually, and 145 million FIM would be appropriated for the research and training projects and services started in the previous strategy as well as to support public libraries.

Ministry of Transport and Communications

The Ministry (http://www.mintc.fi/) implements the transport and communications policy. TIVEKE, the National Information Network Development Programme of the Ministry of Transport and Communications was launched in spring 1995, based on the Finnish national telecommunications strategy of 1994. TIVEKE had working groups for public communication on information networks, for technical development of the Finnish information superhighway, for privacy and freedom of speech on information networks, and for data security on information networks. There are also links to corresponding information on the Web (http://www.telmo.fi/tiveke/english/index.htm).

Other projects of the Ministry of Transport and Communications include *Verkkokaveri* (Network Pal, http://www.p.k.verkkokaveri.net/ohjelma/), which is a development project for small and medium-sized companies. Verkkokaveri will help SMEs utilize networks in their business, advise in data security, copyright and in using directories, contribute to transferring consumer services by SMEs to networks, and assist SMEs in doing electronic commerce.

Information Society Research Centre (INSOC, Tietotekniikan tutkimuskeskus)

Information society issues are one of the strategic focus areas of research at the University of Tampere. The University founded the Information Society Research Centre in 1996. INSOC (http://www.info.uta.fi/winsoc/engl/informat.htm) operates administratively within the University of Tamper, Department of Information Studies. The Centre aims at creating opportunities for multidisciplinary information society research and teaching at the University of Tampere. Research is done in co-operation with faculty departments, and funding obtained mainly from outside sources, both Finnish and international. The Centre also keeps up the ongoing scientific discussion on

the problems of the information society at monthly seminars. Curricula of the faculty departments also include information-society-related teaching.

INSOC at present prepares for new research on key areas of Finnish and European information society developments, i.e.g about research connected to innovative use of new ICT applications within the public sector, local information society developments, digital television and about institutional changes connected to contemporary information society developments. INSOC aims to analyse the interactions and interdependencies between technical and social innovations.

5.3 Information policies, plans and initiatives

5.3.1 National strategies

5.3.1.1 Updating the Finnish Information Society Strategy

The Finnish strategy for developing the information society was prepared in 1994 and outlined in a report ("Suomi tietoyhteiskunnaksi") commissioned and approved by the Ministry of Finance. A position paper by the Cabine Office was approved by the Government in January, 1995. Ministries and other bodies took an active part in the process and outlined and revised their own strategies. To gain and maintain a competitive edge within the world economy, it was considered necessary for Finland to equal and even exceed in sophistication the best IT applications in competing countries. The 1994 Information society strategy consisted of two overall visions: 1) Finland is an advanced information society based on networking, and 2) Finland is a world class competitor in the implementation of information and communication technology. The focus, therefore, was on developing a well-functioning overall IT infrastructure.

A National committee for information society issues was founded in May, 1996. Members of the committee represented both the private and public sector as well as research. The main tasks of the committee included: promoting discussion about the development and impacts of the information society; national and international co-operation; working for new initiatives; and following corresponding projects at a national level. A National information society forum of fifty-one experts and several working groups supported the work of the committee.

The Finnish National Fund for Research and Development, SITRA, launched a one-year project in September, 1997 for revising the national information society strategy (http://www.sitra.fi/tietoyhteiskunta/). The strategy project comprised several thematic and generic studies as well as a public discussion. The main focus was on a human approach to the issues and values of the information society. An updated report and

strategy was handed over to Prime Minister Paavo Lipponen in December, 1998. The report is entitled "Quality of life, knowledge and competitiveness. Premises and objectives for strategic development of the Finnish information society" (SITRA 1998).

It is essential to guarantee the availability of information society services to everybody and to create practical examples which function to meet the requirements of the citizen. The vision outlined reads as follows: "Finnish society develops and utilises the opportunities inherent in the information society to improve the quality of life, knowledge, international competitiveness, and interaction in an exemplary, versatile and sustainable way". The report defines seven spearhead projects to promote the high-flown main objective. Hundreds of millions of Finnmarks are invested in information society projects. Government and local authorities are active in many of them. Companies play key roles in content products and projects of social welfare and healthcare. The spearhead projects are listed below together with the number of on-going projects in May, 1999:

- Cultural and information products and services (Kulttuuri- ja tietotuotteet ja palvelut) – 9 projects
- Electronic transactions and service processes (Sähköinen asiointi ja palveluprosessit) – 15 projects
- Personal navigation (Henkilökohtainen navigointi)
- Electronic learning environment (Tietoverkkojen oppimisympäristö) – 35 projects
- Knowledge-intensive work (Tietointensiivinen työ) – 2 projects
- Business networking and teleworking (Yritysten verkostoituminen ja etätyö) – 39 projects
- The local information society (Paikallinen tietoyhteiskunta) – 27 projects; and
- Seamless healthcare (Sosiaali- ja terveydenhuollon hankkeet; a macropilot) – 27 projects.

Many of the projects match to the key actions and action lines of the IST programme (Information society technologies) of the fifth framework programme of the European Union (Lavikainen 1999).

5.3.1.2 National contents project

Communications industry can be divided into twelve segments: television broadcasting, radio broadcasting, telecommunications, videos-on-demand, cinema and audio-visual production, phonograms and videorecording, newspaper publishing, book publishing,

magazine publishing, online business information services, digital media and media and advertising business. (Sisältötuotannon... 1997). Digitalisation and interactive media pave the way to the convergence of content production, communication infractructure and information technology infrastructure. The converging field of industry is called infocom industry. Finland is one the leading-edge countries in the worldwide infocom cluster in information technology and infrastructure (Sisältötuotannon.... 1997).

To increase competitiveness and to to remain on the frontline, it is vital for infocom enterprises to enhance co-operation with content producers or to invest in content production of their own. Content production or content creation industry means producing cultural, educational, entertainment, document or marketing material or combinations of such materials for publishing in a) traditional one-way or b) interactive digital form.

The Ministry of Trade and Industry has commissioned a strategic study on promoting the competitiveness of content production. Two reports have been published in 1997 and 1998 (Sisältötuotannon... 1997 & 1998). Finnish content industry companies face two alternatives: to stay at home protected by the language barrier or to expand into international markets. To stay at home means a considerable though limited increase in production volume. Expanding internationally requires a considerable capital and raising the whole industry to an internationally competitive level.

Creating content is only the first step in the chain of added value in content production. It leads to further steps: => developing => packaging => marketing => distributing the content. Challenges to be faced in the whole chain include infrastructure and distribution channels so far unestablished, creating a price level attractive to the consumer, resistance to change, general economic prerequisites, legislation (copyright issues), fostering enough services, matters of standardization as well as data protection and electronic payment methods. It remains to be seen what piece of cake business information services will take under pressure of the other segments of the converging industries.

5.3.2 Citizen initiatives

Finland has a well-built technical infrastructure which has greatly facilitated the wide-spread use of Internet particularly among the younger generation. Network access is widely available at work, at home, at school, in libraries. Thus there has not been such a need for Internet cafés as in some other countries. Besides being a channel for acquiring information and entertainment, the Internet is a world-wide communal network. People in remote districts may often find chatting and communicating via Internet the only possible communication channel.

The most prominent citizen initiative in Finland is an association called *Katto-Meny* (from the Finnish and Swedish words Kansalaisjärjestöjen TietoToimisto – Medborgarorganisationernas Nyhetsbyrå). It was originally founded in 1989 by some civic organizations. At first the association was a discussion forum about civic activities in public communication. Activities were re-organized in 1992 when the co-operative society Katto-Meny (http://www.kaapeli.fi/katto/) was founded. It is owned by 450 members, information producers and associations. There are about 170 individual members, e.g. authors and journalists, and 280 community members which include educational, ecological and cultural associations. Each member, individual or group, owns a share priced at 250 FIM (42 euro).

Katto-Meny has developed into an educational and advising co-operative for users of information networks. Katto acts as a "consultant to a society for the citizens" by gathering together civic associations, enterprises, communities and individuals who use the Internet as their channel. Thus Katto will also have an important role to play in plans and initiatives for the Finnish information society.

Katto's activities are built around The Knot in the Cable (Kaapelisolmu), a server which was begun as a pilot project of Katto-Meny and Helsinki City Library. The Library joined the co-operative in 1994. The Knot at the Cable provides Internet access and facilities to non-governmental organizations, cultural movements, authors, journalists, artists etc. The main goals fo the project include providing the public with free Internet access through the library and in promoting the production and dissemination of authentic "contents", workds of literature, art, science and journalism. The Cable Book Library (http://kirjakaapeli.lib.hel.fi/) is now situated in the very centre of Helsinki, at a recently restored 1930's building called the Glass Palace. The Knot is also the Internet station of the Cable Factory (Kaapelitehdas), a huge industrial building in Helsinki which was turned into a cultural centre by artists, artisans, musician and dancers, and into a home of some museums and theatres.

5.4 Legal and regulatory issues

Telecommunications Administration Centre (*Telehallintokeskus*, http://www.thk.fi) is the central authority to supervise application of telecommunications regulations. No central authority supervises electronic mass media.

Finland applies the general principle of freedom of information. Everyone has the right to get information about the activities of a public authority, local or governmental. The Ministry of Justice aims at more open administration by e.g. increasing the publicity of drafting, preparation and revising of laws, decrees and administrative affairs in general.

The Ministry of Education contributes to developing of copyright legislation. The Ministry of Trade and Industry is responsible for implementing copyright (patents, trademarks, utility models). The Office of the Data Protection Ombudsman is responsible for promoting data protection.

The Finnish Copyright Act from 1961 has been amended 20 times since coming into force.The Act protects works of Finnish origin. A decree on the application of the Copyright Act came into force in 1995. Finland has acceded to the WTO Treaty of 1994 about industrial rights. Since joining the European Union in 1995, Finland has linked the development of copyright law with the Community law. Digitalisation poses a challenge to copyright on creation, production and distribution. Important legislation is made at the Community level due to the global nature of digital networks.

Since 1985, the Government appoints a *Copyright Council* every three years, composed of the major right holders and users or protected works. Anyone is allowed to request the Council's opinion, including private persons, business enterprises and the police. Holders of copyright have founded associations to administer their rights. The associations also negotiate with publishers and radio and TV companies. Antipiracy organisations consist of *Gramex* (rights of performing artists and producers of phonograms), *Kopiosto* (30 000 Finnish rightholders in 44 member organisations; rights to photocopying, recording and transmission of TV and radio programmes), *Teosto* (rights of composers, lyricists, arrangers and producers as to public performance and recording of music), *Kuvasto* (rights to visual works) and *Tuotos* (rights to audiovisual works). The Copyright Information and Antipiracy Centre was established by various organisations and works with Gramex.

The *Office of Data Protection Ombudsman* (*Tietosuojavaltuutettu*, http://www.tietosuoja.fi) is reponsible for promoting data protection in accordance with the Personal Data Files Act of 1987, international agreements and recommendations. The Data Protection Ombudsman has the right to request information from filekeepers about file-keeping activities and the right to inspect personal data files regardless of confidentiality restrictions. The views of the Data Protection Ombudsman influence legislation, too. The Ombudsman makes his own initiatives regarding privacy. The Ombudsman receives almost 900 written complaints or queries a year, the majority from individual citizens. Advice is also given by telephone – approx. 30 times a day.

Everyone has the right to be informed of the source of information about himself, how that information is used and to whom that information is given. Everyone has the right to know if a file includes data about himself, i.e. he has the right to demand and in most cases get such information from a filekeeper. Everyone is also allowed to require the filekeeper to correct any incorrect information on a file about himself and also demand compensation from the filekeeper for any damage caused by such incorrect personal

information. Every person also has the right to prohibit the filekeeper using and surrendering information for direct marketing, market research and other similar purposes. The new data protection law will obligate filekeepers to inform the targets of file-keeping about relevant issues while gathering information about them.

5.5 Economic infrastructure and other factors

5.5.1 Population and languages

Finland has a surface area of 338 000 sq km and a population of 5,1 million people (Table 26) which makes 1,4% of the total population of the European Union. Finland is a fairly sparsely populated country: the average population density (16,9 per sq km in 1996), is only 4,5% of that of the Netherlands. The annual growth rate of the population is very low, showing a tendency similar to all the Western European countries; it was 0,3% from 1996 to 1997. The majority, nearly 60% of the Finns live in urban municipalities. Developments in information technology and the advancing information society have brought about some consequences contrary to those expected, and one of them is the growing concentration of the population in urban municipalities.

Finland has two official languages. Finnish is spoken as the mother tongue by the majority, almost 94% of the inhabitants, Swedish is spoken by 6%. A minority speak Saami (Lappish) as their mother tongue. Also the Romany language and the Finnish sign language have an acknowledged status of minority languages.

Table 26. Population statistics, Finland (Statistical Yearbook of Finland, 1995: Tables 25 & 30 and Statistical Yearbook of Finland 1998: Tables 25 & 31).

Population	*1994*	*1997*
Population, end of the year	5 098 000	5 147 000
Population density per sq km of land area	16,7	16,9
In urban munipalities, % of total population	58	60

5.5.2 Economic situation

Finland is among the participant countries in the euro area, operative on Jan. 1, 1999 in compliance with the Treaty Establishing the European Community.

The Gross domestic product in Finland in 1997 was 630 billion FIM (about 107 billion ecu), an increase of about 21% from the GDP in 1994, at market prices. The inflation rate came down rapidly during the first years of the 1990's; inflation is at the low level of around one percent, measured by the year-on-year-change in the consumer price index in 1994 and 1997. The rate of unemployment in Finland, though still over 10%, shows a slightly continuing decrease from 1994 to 1997. The preliminary figure for 1998 is 11,4%. Table 27 summarizes Finland's economic infrastructure in 1994 and 1997.

Statistics about foreign trade by country group show that the EU countries account for 60% of Finland's imports and 53% of exports. Germany, Sweden and the United Kingdom are our main trading partners, followed by Russia and France.

Table 27. Economic infrastructure in Finland (Web pages of Statistics Finland, http://www.stat.fi, on March 30, 1999).

	1994	*1997*
Gross domestic product at market prices	521,1 billion FIM	630,2 billion FIM (preliminary)
GDP per inhabitant	102 405 FIM	122 616 FIM
Inflation, %	1,1 %	1,2 %
Unemployment rate, %	16,6 %	12,7 %
Imports at current prices, million FIM	120 547	160 995
Exports at current prices, million FIM	154 163	212 840
High-tech exports, million FIM	16 645	33 989
High-tech exports as % of total exports	10,7	16

Industrial production has become more diversified in structure. The main emphasis nowadays is on technology-intensive products and fields. In 1995 the value of high-tech exports exceeded that of imports, making Finland a net exporter of high technology. In 1997 exports of high-tech products (34 billion FIM) made up 16% of Finland's total exports. Finland is spurting with France to catch Great Britain in the percentage share of high-tech exports. Structure of Finland's total exports since 1960 is shown in Table 28.

The net sales of the Finnish information and communication industry as a whole amounted to about 117 billion FIM in 1995. The sector accounted for 12% of the net sales of all enterprises and 15% of the combined employment of all enterprises. The number of companies in this sector, their net sales and employment figures increased much faster than the average rate for the whole business sector in 1993–1995. Core industries of the information sector accounted for one third of the growth in the whole employed labour force in 1994–1995. Of all the employed labour force in 1995, 44% were working in occupations connected with information. Approximately half of the new jobs in manufacturing were generated in the information sector.

Table 28. Exports of Finnish industry from 1960 to 1997, % (Forsgren 1999, p. 40).

Industry branch	*Year 1960*	*1970*	*1980*	*1990*	*1997*
Wood products	27	16	15	8	7
Pulp and paper	42	40	30	31	24
Electronics and electrical	1	2	4	12	25
Metal industry	14	23	25	31	27
Other industry	16	19	26	18	17
Total, %	100	100	100	100	100

5.5.3 Research and development in Finland

Finland has shown a considerably high growth rate in high-technology exports since 1988. High-tech exports' share of total exports in 1988 was only 4%, in 1997 as much as 16%. The percentage share has increased by about 7% in the last few years. High-technology exports mainly comprise telecommunications equipment, computers, instrumentation, space equipment and chemicals.

Technology policy has an active role in Finnish economic policy. R&D investments also lead to further increases in productivity. Investments in R&D have increased steadily in the past 15 years. The level of R&D investments was 2,8% of GDP in 1997 and 2,9% in 1998. Enterprises account for two thirds of all R&D expenditure, with a rapid annual increase (18%) from 1995 to 1997. Universities and university hospitals account for one fifth of all R&D expenditure. Tables 29 and 30 summarize R&D expenditure by sector and as % of GDP.

Table 29. R&D expenditure in Finland by sector, % (Statistical Yearbook of Finland 1998, p. 474).

	Enterprises	*Universities*	*Public sector*	*Total*
% of funding, 1994	62,2	18,9	18,9	100 %
% of funding, 1997	68,8	16,8	14,4	100 %

Table 30. R&D expenditure as % of GDP in 1995 and 1997 (Web pages of Statistics Finland at http://www.stat.fi, on March 30, 1999).

Year	***Finland***	*France*	*Germany*	*Great Britain*	*Norway*	*Sweden*	*USA*
1995	2,37	2,34	2,30	2,02	1,71	3,59	2,61
1997	2,78	2,26	2,39	..	1,56	..	2,64

.. = not available

6. Regional electronic information services network: case Kuusamo

6.1 Municipal background

Finland is divided into 452 municipalities and cities where the autonomy of residents is safeguarded in the constitution. The decision-making power of local authorities is exercised by a council elected by the residents. Sixty-five per cent of the population live in urban areas with over 20,000 inhabitants. Local authorities are primarily responsible for public services in Finland. Education, social welfare and health care and also maintenance of the technical infrastructure are the most important services supplied by local authorities. The Association of Finnish Local and Regional Authorities safeguards the interests of local and joint municipal authorities, and offers a range of expert services. Finland's Regional Councils are joint municipal authorities operating according to the principles of local self-government. They operate as units for regional planning and development and look after regional interests.

The national information society strategy has recently been updated in Finland; the final report was published in December 1998. Visions of the strategy include safeguarding balanced regional and local information society development. The local information society, therefore, is one of seven spearhead projects. Its main objectives consist of developing good practices in implementing regional and local information societies and in promoting regional co-operation and interaction and pooling of resources.

6.2 Case Kuusamo

Regional electronic information networks with interactive services on the Web are being developed in a growing number of municipalities in Finland. Kuusamo is one of the pioneers in developing municipal IT-based services to its residents in the past ten years.

6.2.1 What and where is Kuusamo?

Kuusamo is a municipality in northeastern Finland in the Koillismaa region. Kuusamo has a total area of 5,805 square kilometers (one fifth of the area of Belgium) and a population of 18,400 inhabitants. Two Lapp villages existed in the area in the Middle Ages and an old trade route ran through Kuusamo from the Gulf of Bothnia to the White Sea in the east. Kuusamo is a highland area with forests (60% of the area) and lakes

(more than 160) and is a very popular travel resort especially for winter sports, with over a million tourists a year.

6.2.2 Implementing a local electronic information network in Kuusamo

6.2.2.1 Initiative and funding

In developing sparsely populated areas, well-functioning telematic infrastructure plays a vital role in modern information society. Smoothly running information technology together with a wide variety of services available via the network make an essential tool in keeping the whole economy alive, also municipalities which are situated farther away from larger cities and R&D conglomerations of universities and enterprises.

Development of a local information society started in Koillismaa in the far northeast of Finland about ten years ago. In 1989 the municipality of Kuusamo participated in a national project of twelve municipalities (local telematics know-how and information society in municipalities). Its two main aims were the development of distribution channels for municipal services and the utilization of information technology in carrying out such services. The project was carried out in Kuusamo in 1990 and resulted in a method for developing a municipal service strategy.

Kuusamo also participated in another national planning and working group in 1990. Its main theme was: Which services can municipalities give to their residents via information networks? Results of the national project plan encouraged Kuusamo to be a pilot municipality in testing the feasibility of the idea.

Project PAVE (palveluverkko, service network) in the Koillismaa telematic information network forms the framework for developing Kuusamo municipal information into a Web version. PAVE included preliminary analysis and surveys as well as raising the level of knowledge of local entrepreneurs about information networks, developing regional and local services, creating the basis for information content and developing the application.

Funding was appropriated as government subsidy from labour force district, as well as municipalities in the Koillismaa region in northeastern Finland and suppliers of the necessary technology. Kuusamo municipality was and is, however, the major source of funding for the planning and implementation of Kuusamo's Internet services as well as for further development and maintenance.

6.2.2.2 Timetable, planning and technology

The major instruments in implementing a well-functioning local network consist of the physical network, network services and educating potential users. Early 1996 saw the first phases of the present development in Kuusamo: collecting, analysing, reworking and converting content and material suitable for the choice of services. Summer 1996 marked a pilot of the services and further refining. February 1997 marked the publication of the Kuusamo Web (http://www.kuusamo.fi), at the same time as the Web of a larger regional project, the Koillismaa information network.

Structure (cf. Figure 4) and graphics of the Kuusamo Web has undergone further development during 1998. New services have been added, particularly transactional services, access to the library's registers as well as agendas and minutes of the meetings of local administration.

The present Internet-based service is based on material planned for and implemented in earlier phases. Renewing the graphic outline has been the main item in developing today's services. It has also been necessary to renew the structure and content to some extent in co-operation with local and regional authorities. Schools have gone their own way in planning and implementing their Web pages, each according to its interests. Further education has been organised to teachers in producing Web pages.

Some of the material of earlier phases has been converted to the new Web version. Pages have been coded 'manually' or with an html editor. Content producers do not normally use any other means than text processing. Updating the content in the municipal Internet is partly automatised and delivered direct by the operational systems (municipal services, handling one's affairs with the authorities, library system). New applications are based on user interfaces. The server application is based on experiences and structures from the telematic information network in the Koillismaa region.

6.2.2.3 Contents and usage

The present structure of Kuusamo's Web pages can be seen in Figure 4. Interactive or partly interactive sections allow the user to make a "transaction" e.g. by

- posing a question to municipal authorities
- making a complaint to the municipal consumer adviser
- asking for further information from the cultural centre Kuusamo-talo

- searching for a title in the library's collections and making a reservation
- ordering travel information and brochures and reserving accommodation
- adding an event to the Event Calendar
- ordering a building permit application
- filling in an application to decline joining municipal waste disposal system
- searching for a company or a branch in the Koillismaa company register
- registering to a course in the summer university of the northern Pohjanmaa province.

An alert citizen can read the agendas and minutes of the meetings of communal administration, councils and boards on the bulletin board. It also gives a list of building permits granted during the current and previous year.

There is plenty of information about services by local authorities, a telephone directory to the authorities, plenty of local statistics and history, and a good alphabetical index. One is also able to access the larger Koillismaa Web and keep up with ongoing IT development projects in the area.

Residents of the municipality and of the Koillismaa region are the main users: about 60 to 70% of users. There are about 300 daily sessions. Agendas of meetings, decisions made, the main pages of the local administration (descriptions of services) as well as travel pages, event calendar and maps are the most popular hits.

Statistics about interactive transactions is inadequate but does, however, indicate something like 80 interactions in a period of six months (about 120 to 160 interactions in a year = 12 to 13 interactions per month), mostly enquiries and feedback. It is likely that all residents have not yet realised the ease of use of the municipal telematic network in dealing with local authorities; neither do all of them have access to the Internet via their home computers.

Microcomputers with Internet access (with a Web browser and telnet facilities to read one's mail) are available to users free-of-charge in the library in Kuusamo, in a local travel centre and in the town hall. In addition, it is possible to access the Internet via microcomputers at the library of the vocational school for a small hourly fee.

6.2.2.4 Problems, benefits and future development

What are the main benefits – or the major problems – experienced so far? Municipal authorities rank improved accessibility as the main benefit. Certain prerequisites for

"real" transactions are still missing. The main benefits and problems are listed in the following.

Benefits

- improved accessibility to services which are now better and more readily available
- it is now possible to automatically transfer information from operative applications into a Web version
- possible to give up certain press releases because the same information is available via the Web, e.g. events calendar
- automated maintenance, thanks to modern technology
- possibility to browse the library's main register is a major improvement to the selection of services, as well as agendas and promemorias of meetings; documentation, subject matter and search features are even bettter than those at the library's own client PCs.

Problems

- electronic identifying procedures are yet missing; they would be a prerequisite to "real" transactions
- it is necessary to develop service processes further to make benefits more concrete – there is the challenge!
- no benefits yet in production of services; limited resources and limited time make it difficult to develop maintenance and updating of current information content and network services.

How does the future look like?

Further renewal of graphics is going on in 1999, as well as of updating the services. New technology to publish current municipal notices and bulletins is being implemented.

Progress with electronic transactions (standards and methods of identifying and encryption) will enhance the possibilities of the residents for interactive transactions and handling their business with local authorities via the Internet. Access to current geographical information is one of the main projects under development. Open learning environment is also being developed together with the Ministry of Education.

In developing the physical network, contents and training programmes, all is done in co-operation projects. The municipalities at Koillismaa have, of course, developed their own services (selection of services, resources, operative applications etc.). "Kuusamo's projects have roused a great interest", says a representative of the municipality. "We hope that we are able to give an example to others also in the future especially as to implementing a local information society."

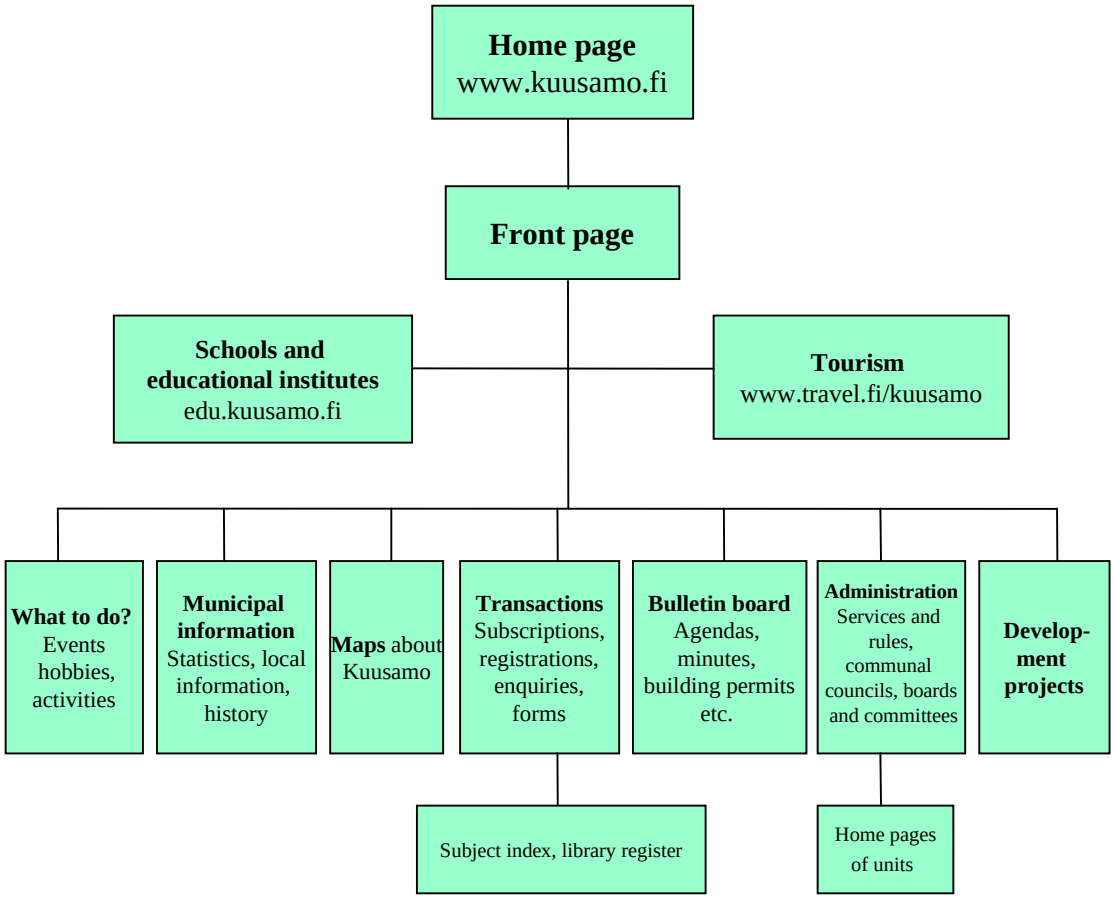

Figure 4. Structure of Kuusamo's Web pages.

7. Future development and trends in electronic information services: national expert survey

7.1 Purpose and execution of the national expert survey

The aim of national expert polls was to detect future developments and trends in the electronic information services market and to assess opportunities for national players of the corresponding industry.

Targets for the national expert survey were chosen among representatives of supply, demand, research and policy makers. A list of 28 names was made up, including major suppliers, hosts and distributors, power users, Internet providers, research institutes and funding organisations as well as political decision-makers. Unfortunately, it proved difficult to persuade them to take part in the opinion survey. Nine targets responded to the questions. Thus the response rate was 32%. None of the political decision-makers responded.

7.2 Overview of experts' opinions

The survey questionnaire proved all too complicated for this kind of an opinion poll and was therefore streamlined for Finnish respondents, cf. Appendix A. It consists of a series of eight questions with subquestions which are analysed in the following. All respondents did not give their opinion on all matters.

7.2.1 Electronic business information services and consumer services

Respondents were asked to give their estimate about the share of business information services as a percentage of the total markets for electronic information services (EIS) in Finland in 1997 and 2003, also reasons for their assessment. Business information services denote online and offline electronic information services which are mainly used for professional purposes in the working place (e.g. in an enterprise, a research organisation or a government institution). Consumer services denote online and offline electronic information services which are mainly used by individuals for private purposes at home. Corresponding examples of services well-known to the Finns were stated in the questionnaire. All but one respondent gave their estimates.

A common trend in the answers shows a decline in business information services and a corresponding increase in consumer services from 1997 to 2003. The average share of

professional information services in 2003 was estimated to 55% of the total EIS market, consumer services to 45%.

Table 31. Estimated average share of business information services and consumer services as percentage of the markets for electronic information services in Finland in 1997 and 2003.

Type of service	*1997*	*2003*
Business Information Services	74 %	55 %
Consumer Services	26 %	45 %
Total	100	100

Consumer services were considered the greatest potential income source for EIS providers. The market for business information services may be a mature market but consumer information is on its way. On one hand: ordinary citizens at households learn to use network services, connection costs will decline, there will be more services to consumers from public authorities, including local municipal administration – thus added benefits of use for the consumers. On the other hand: consumers have become used to "free" services on the Web, and the development of electronic payment systems will have its impact on the situation.

No exact figures are available from the past few years about the total market, including consumer services. This accounts for the great variety of estimates in the consumer sector. Estimates given range from 5% to 50% in 1997, and from 12% to 80% in 2003.

7.2.2 Markets for electronic business information in Finland

The respondents were asked to assess the average annual growth rate for the total market for *electronic business information services (online and offline)* and give their reasons. They were then asked to assess the percentage share of different *distribution channels (online realtime, online retrospective, offline)* and estimate the development of *online retrospective database services* according to alternatives given. The majority of experts gave their estimates.

7.2.2.1 Annual growth of electronic business information markets

The annual growth rate of the markets for electronic business information (real-time news, company information etc.) in Finland from 1995 to 1996 (12,2%) was given as an example, based on estimates by Statistics Finland (Sauri & Kohvakka 1998, p. 92). Statistics Finland estimates the growth rate of this sub-market from 1996 to 1997 at 6%. It is therefore likely that the respondents indicate too high a growth rate.

Table 32. Average annual growth rate (%) for the total market for electronic business information services in Finland from 1995 to 2003, as estimated by the respondents.

Year	*Annual growth rate*
1995-1996	12, 2 %
1996-1997	13 %
1998-2003	19,5 %

Estimates of the annual growth rate for 1996–1997 given by Finnish experts ranged from 6 to 20%, for 1998–2003 from 5% to 30% – the dispersion probably due to two alternative ways of interpreting the question. It is possible to estimate the growth rate either a) as to contents markets only or b) also including income by the network operators, i.e. revenues by the operators from connections. To get an overall estimate of the size of the markets one should also consider the seemingly "free-of-charge" usage in libraries in Finland. Libraries do not charge their customers even for network connections in using the Internet; funding for such a service comes elsewhere.

Reasons given for estimates state the growth in services to end-users and consumers, leading to further usage and more income to providers. The Internet will proliferate, more added value will be offered in the net and wireless connections will speed the development.

7.2.2.2 Distribution channels

All target persons gave their estimates of the market share of different distribution channels. The common trend shown was a slight decline in online retrospective database services and a similarly slight increase in online real-time information services. Offline media would retain its low market share. CD-ROMs would retain their importance as storage of large masses of static information.

Table 33. Estimated average market share (%) of different distribution media or channels in the markets for electronic business information services in Finland in 1997 and 2003.

Distribution media	*Market share in 1997*	*Market share in 2003*
Online real-time information services	59 %	65 %
Online retrospective database services	35 %	29 %
Offline	6 %	6 %
Total	100 %	100 %

7.2.2.3 Online retrospective database services

The annual growth rate of online retrospective database services in the period from 1998 to 2003 was assessed by means of a chart and separately for networks, content and offline media. The chart had five alternatives: more than 20%, between 15 and 20%, between 8 and 15%, between 0 and 8%, or stagnation/decline. All nine respondents gave their estimates though not all to every sub-question. Real-time information services were not included in the question. Four experts stated reasons for their estimates as to networks or content.

In analysing the responses, the alternatives were grouped as follows: growth rate more than 15%, between 0 and 15% or stagnation. Estimates given to various alternatives are listed as absolute figures in Table 34. The following is a short summary of each sub-section, together with reasons given.

Networks: growth rates and reasons

Almost every respondent estimated the average annual growth rate of Internet markets to exceed 15%, the majority to over 20%. The majority also said that the growth rate of wireless markets would exceed 15%; more than half of them said it would even rise to over 20%.

One half of the respondents expect a decline in consumer networks, so called Telmo networks (formerly videotex-based, nowadays all ASCII) in Finland. The other half is still confident about a slight annual growth, but only by less than 8%.

The respondents were also given the opportunity to name other networks. One of them mentioned digital TV and two mentioned Intranet, both estimating the average annual growth rate to more than 20%.

Four respondents gave reasons for their estimates. In their opinion, Internet and mobile networks shape the future; wireless services are taking the first steps in development. Electronic commerce in the net is approaching the phase of a strong growth. Special networks for consumers in Finland, so called Telmo networks stagnate since the interface does not meet the modern consumer's requirements. Networks will grow in capacity, prices of connections will drop, usage will widen to new fields.

Content: growth rates and reasons

News market is expected to grow with over 15% annually, even over 20% by the majority of those who responded. A fair half of them also estimated that the market for credit information will show a similar growth rate.

There was a wider dispersion in growth estimates about the markets for other kinds of business information (e.g. economics or company information). An almost even number of estimates were given to the alternatives "more than 15%" and "less than 15%". The majority considered that the markets for legal information would not grow over 15% annually.

Growth for scientific, medical and technical as well as patent information will slow down: according to two thirds of the respondents it is less than 15%, even less than 8% annually. One third still considered this section an increasing branch.

New media was mentioned as other alternatives by one respondent, with an annual growth rate of the markets in 1998–2003 of over 20%.

Optimistic respondents look forward to the digitalisation of all types of content and to exploiting it in many kinds of media. Services of professional content will proliferate due to the growing use of the Internet and easy distribution. Similar development is expected to occur in up-to-date business and product information on the Web. Small and medium-sized enterprises learn to understand the importance of information. News will proliferate and advertising, too. Government and municipal authorities will distribute information via the net to a growing extent. There is an increasing market for CD-ROMs for pastime and entertainment.

Offline: growth rates

Diskettes seem to be a declining offline media: stagnation according to five out of eight responses. Estimates of the annual growth rate of the markets for CD-ROMs scattered to all alternatives but a majority stated it would not exceed 15%, or would even decline.

The winner will be the digital versatile disc, DVD, thanks to its very versatility. Almost half of the respondents cautiously stated the annual growth rate of DVD markets would not exceed 8%; on the contrary, an equal number of respondents expect a growth rate of over 15% annually. Electronic book was given as another forthcoming alternative, with an annual growth estimate of less than 8%. – No further reasons were given to any estimate.

Table 34. Average annual growth rate of online retrospective database services (networks and content) and offline media between 1998 and 2003, estimates in absolute figures.

Area	*More than 15 %*	*Less than 15 %*	*Stagnation*
1. Online retrospective database services			
1.1 Networks			
Internet	8 responses	1 response	
Wireless (e.g. GSM, UMTS) x)	8	1	
Telmo networks (e.g. Infotel, Telesampo)		4	4
Other: digital television	1		
Other: Intranet	2		
1.2 Content			
Credit information	5	4	
News	5	4	
Other business information	4	5	
Legal information	1	8	
STM x), patents	3	6	
Other: new media	1		
2. Offline			
CD-ROM x)	2	4	2
Diskettes		3	5
DVD-ROM x)	3	4	
Other: electronic book		1	

x) Abbreviations used: UMTS = Universal Mobile Telecommunications System; GSM = Global System for Mobile Communications; STM = scientific, technical and medical information; CD-ROM = Compact Disk Read-Only Memory (optical compact disc); DVD = Digital Versatile Disc.

7.2.3 New business areas and product policy

7.2.3.1 Electronic commerce and advertising

National experts were asked to estimate the percentage share that electronic advertising and electronic commerce will have of the total income of providers of online or offline electronic information services in the year 2003. The Finnish respondents were given four alternatives: more than 20%, between 15 and 20%, between 8 and 15%, less than 8%. Table 35 shows the absolute numbers of estimates given by nine respondents (advertising) and eight respondents (commerce). Five respondents gave reasons for their estimates.

Table 35. Estimate of the percentage share that electronic advertising and electronic commerce will have of the total income of providers of electronic information services in 2003.

Area	*More than 15 %*	*Less than 15 %*
Electronic advertising	5 responses	4
Electronic commerce	6	2

Slightly over half of the respondents to this question estimated that electronic advertising would bring in over 15% of the total income of EIS providers in 2003. A fifth of them gave an even more optimistic estimate of over 20%. The majority assessed that electronic commerce would have a share of over 20% of the total income in the same year.

There is an ambiguity in this kind of question, too. Electronic commerce is entwined with electronic advertising, and vice versa. And what is included in electronic commerce? Every respondent might have his own views on this. – Anyhow, some reasons given were that network portals will take the advertisers' money and that the players in this field will, of course, be individual shops, supermarkets, department stores etc. commercial enterprises in business – and not EIS providers.

7.2.3.2 Multimedia

A growing number of small new media companies are entering the market. Multimedia is an element used to add value and visibility to products on the Web, on a CD-ROM or other electronic media. One of the purposes of MSSTUDY II was to assess multimedia for professional electronic information services. Therefore national experts were asked to assess the share of such multimedia products (including audio and video elements) of the turnover of EIS suppliers in 2003. Seven out of nine respondents gave their estimates, according to the same alternatives as for electronic commerce and advertising: more than 20%, between 15 and 20%, between 8 and 15%, between 0 and 8%.

The multimedia question was ambiguous, too. One could either estimate multimedia's share of the provider's total income or its share of the provider's EIS income. And what does one count as multimedia – the integration of a microcomputer and a mobile phone, universal mobile telecommunication system? Nevertheless, only one expert estimated that multimedia products would have a share of more than 15% of EIS providers' income in 2003. A great majority, well over 80% of the respondents, estimated that multimedia's share would not exceed 15%, and most of them placed it in the category "between 8 and 15%". Multimedia elements are not crucial and do not give very much added value to electronic information products for professional business purposes. On the other hand: are we to be taken aback by accelerating growth?

7.2.3.3 Commercially promising products or services

EIS providers and intermediaries (information brokers) will earn an increasing amount of their revenue by analysing, refining and re-packaging information rather than by delivering "raw" search results to their customers in the future. National experts were asked to give examples of three commercially promising products or services during the coming years, together with their reasons. One example was given by seven experts, two by six and three by only two experts. Finnish experts mentioned the following products and services:

- demographic and other consumer information for marketing purposes both at home and for export
- home shopping for groceries via the Internet, and deliveries to the consumer's door
- real-time advising for private investors, financial analysing services in general

- electronic journals and books, also advertisements about them as a bait for acquisition
- company analysis and rating information à la Dun & Bradstreet
- the ever growing variety of services via advanced mobile media (the integration of microcomputers and mobile phones): all kinds of electronic services via the personal mobile phone, Internet and Intranet connection, electronic mail, news, paying bills from your own bank account, heat regulation of your house etc.

7.2.3.4 Quality information products and services and other trends

Another almost similar question was posed to the experts: Please, give three examples of trends for quality information products or services which will play a special role from now to the year 2003. Six experts gave one example, four experts gave two and three experts gave three examples. A common feature in the examples was brands and customising. To succeed on the markets, you have to launch a specific product or service for specific purposes to a particular group of customers, either professionals or consumers. The following list covers the most frequent examples, some of them similar to those given above as commercially promising:

- brands, customising and commercialisation according to customer needs: specific products or services for different customers or customer groups, e.g. directories which have been rated acc. to standardised criteria
- hybride products: the same content, but various distribution channels
- electronic journals and books (here again): a fast way of finding information; electronic archives; the possibility of consortia for acquisition
- consumer services: banking, information from and business with public authorities, information about the European Union, the Finnish Parliament; electronic commerce
- consumer information for advertisers to direct their money: television, WWW
- multimedia for games and other pastime products
- economic surveys, trade cycles.

Three experts had pondered the situation of Finland's EIS markets further and indicated some other trends of significance up to the year 2003:

- Finland's strong position as the leader in electronic information and communication as well as her advanced technological infrastructure play a significant role in furthering the development of the national EIS market.

- more consumer services should be supplied as soon as possible in wireless networks and via digital TV (cf. the integration of a microcomputer and a mobile phone).
- a growing number of people will have access to electronic information; N.B. those who do not; overflow of the English language is a disadvantage (high-quality text is only produced in one's mother tongue!).
- everything will move to the Internet; networks will develop further and there will be new ways of communicating information (wireless, GSM); people will want more and more; pastime opportunities on the Web (hobbies, studying, games, CD-ROMs etc.).
- it is a global market: more market share is available in the European Union countries.

7.2.4 Market barriers

7.2.4.1 Market barriers at present

Despite technical progress, user-friendly interfaces, search agents and other improvements to enhance the usability of electronic information services, especially via the Internet, there are still barriers to wide-spread usage. The respondents were to list three most important barriers to the development of EIS markets in Finland. Eight experts mentioned two barriers, five experts listed three. Five experts also considered measures to be taken to eliminate these barriers. The most important barriers are listed as follows:

- attitudes, habits; the fallacy that "all information is free"; it is difficult to consider information a product or a factor of production
- security measures still under development; electronic identifying and paying
- missing enthusiasm for risk-taking or innovational inputs in R&D and marketing (main players only few and big)
- established actions or standardised measures missing: licensing, copyright, legislation
- small and remote market, not enough resources, low rate of internationalisation; Finnish an exotic language
- commercialising, pricing, brands: products not clearly profiled; the future belongs to specific customised products and services.

What should be done to eliminate the barriers? Measures of national information policies or information society strategies were not considered here; it was a question of

what should be done by information providers, by information brokers and specialists or by users and user associations.

Training, education, instruction are as important as ever before. Equally important are products and services of constantly *high quality*. Training should be given to both producers and users. *Producers* should learn to make high-quality products which are also user-friendly. *Users* should get encouraging experiences in the fun of and benefit gained from electronic information services. It is the responsibility of *information specialists*, professionals of the branch, to organise training, directed particularly to small and medium-sized enterprises. It is also the responsibility of information professionals to insist on the further development of products and services they receive from hosts, producers and other brokers – and not to accept traditional supply re-packaged!

Reliability is always one of the premium requirements. Standards and recommendations should be agreed upon to guarantee the quality and reliability of information products. Products should be developed a) according to customer needs and in co-operation with customers; b) direct to global markets, not only to Finland (localising and translations a job for language engineering companies); c) no free services, only commercial products. Electronic identifying, electronic citizen card is looked forward to; it would boost further developments in the market.

7.2.4.2 Market barriers in 1989–1990

VTT Information Service in the 1970's and 1980's made fives surveys about the use of online services in Finland. The latest survey (Eskola & Lehti 1990), based on an extensive questionnaire sent to all information services in Finland, concerned the year 1989. One of the questions was about factors hindering wider use of online services. It is interesting to compare the results of the 1989 survey to experts' opinions in MSSTUDY II. A decade ago, most Finnish users considered *pricing* the most important barrier. Lack of time, lack of *training*, inadequate equipment were also mentioned. More up-to-date information was also needed. – A wealth of real-time information is at hand today, but ever more is needed.

Ten years ago, before the present information overload, pricing was a barrier because of the charges – often relatively high and varying according to system or database – a user had to pay for online information systems and databases. At present, with the Internet explosion, pricing is still a problem but for reasons contrary to those in 1989. Users tend to cherish the illusion of the slogan "It's all there and it is free" about information available via the Internet. Well-structured, classified and reliable information has always been charged for, and will be charged for. Present new users, inspired by the vast supply

on the Web, will be looking for a guarantee for quality information sources, and hopefully willing to pay for quality and reliability.

7.2.5 Information policy in Finland and in the European Union

7.2.5.1 Information policy in Finland

What should the national Government do to support the development of EIS markets in Finland?

Information society strategies have recently been updated in Finland by the Finnish National Fund for Research and Development (Suomen itsenäisyyden juhlavuoden rahasto, SITRA), cf. chapter 5.3.1.1. In addition, national experts gave their opinions about further measures of importance. They are to a certain extent similar to those mentioned in chapter 7.2.4.1 about eliminating barriers.

Training, the importance of "*media literacy*"; risk-taking and the need for *more R&D funding*; *electronic citizen card* – these are the main measures recommended by six experts. A summary follows:

- more risk funding; it is essential to help small innovators enter the global market; less bureaucracy and more R&D money
- training, learning to understand; schools and universities are to intensify their input in information; multiply funding for the national electronic library, FinELib
- reworking on attitudes and habits; elderly people shun electronic services; media literacy raises the level of know-how; citizens who "know how", also know how to purchase and use information services both for professional and private purposes (the importance of developing the supply of information by and the possibility of handling business with public authorities electronically)
- electronic identifying, encryption; electronic citizen card, electronic payment methods, legislation, culture.

7.2.5.2 Information policy in the European Union

What should be done by the European Commission to support the development of EIS markets in Europe? Four experts expressed their views on recommendations to the Commission in the field of European information policies.

Support measures should be turned from supply to demand; more support to demand, less to supply! Let free competition direct the development. Dangers of American competition must be taken seriously. It is very important to spur investments in products aimed at European markets. A summary of recommendations follows:

- go along to global development like OECD and ICC
- decrease support to supply; services produced by and financed from public coffers only hamper free market development and distort competition
- increase support to demand; less restrictions, free competition
- American competition poses a danger: Americans strive to secure their market position by restrictions and see the unified Europe as a danger
- invest in developing products to the European market
- financial support to the infrastructure in the previous Eastern Bloc countries in order to broaden the market base.

7.3 Positioning Finland on the information highway

Mr. *Matti Lehti,* Chief Executive of Tieto Corporation, has faith in the future of Finland in the global information society. Tieto Corporation is the largest information technology service company in Finland, specializing in the development, integration, maintenance and operation of advanced information systems. The company's core business is high-value-added professional services. Tieto operates in 13 European countries, and has a personnel of 5500 and net sales of 2.8 billion FIM (approx. 470 million euro).

Communications, either physical transport by roads, railways etc. or non-physical transfer by telecommunication networks, form the core infrastructure in modern industrialised societies. Information highways will mean a far-reaching and more profound change in the societies than the development of the physical traffic network.

Mr. Lehti looks with confidence towards the on-going move to the information society (Lehti, Matti 1998). It will continuously demand technical breakthroughs in many fields but also produce entirely new services and business sectors. In his opinion, most of the products and services in the future will be made, marketed and consumed via electronic networks.

There are three main keys to the advent of the information society and information highways, based on digitalisation: 1) the miniaturisation of microprocessors, 2) the increase in processing power and 3) the fall in processor prices. Computers have left the

floor for the desk, and the desk for our pockets. We might perhaps modify a well-known slogan: The digital revolution will indeed unite all the computers of the world, thus connecting the labour force of the world. Wired and wireless connections mean mutual communication between microprocessors all over the world. We go forward towards the integration of personal computers and mobile phones, and to modern wireless networks and digital televison.

The speed of development varies from sector to sector. Data-intensive sectors such as banking, insurance and travel agent services progress fastest and lead in structural changes. In the Nordic countries particularly banking paves the way to a real information society since most banking transactions are handled in electronic networks today.

Competition and customer benefit are the prime drivers of development. Customers obtain the services they need via information networks in a faster and more cost-efficient way. An ordinary citizen will be able to attend to one's affair e.g. with public authorities in an easier way direct at his home computer. New distribution channels and modes of operation will overlay those existing today or they will both exist side by side. In many a branch, production and service will be handled electronically by servers and the connecting networks. Information content will converge with technology and telecommunications and result in completely new kinds of services and business sectors. Finland and Sweden are pioneers in building an information society. Major leaps in productivity will strengthen Finland's international competitiveness and position her in the leading place in future information environment.

8. Conclusions

8.1 Electronic information services in Finland

8.1.1 Prerequisites

Finland with her 5,1 million people is a world leader in telecommunications technology, with a readiness to adopt high technology in general. Telematics applications cover a wider range of fields, and the level of computerisation places Finland among the top ten in the world. The number of Internet servers (hosts) in Finland is also a world record (88,1 per 1000 inhabitants) and so is the number of mobile phones; at the end of 1998 the number of mobile phone lines exceeded that of conventional telephone lines. The liberalization of telecommunications networks got under way in 1985 and was completed in 1994. The process was easier than in most European countries because of the strong tradition of competitive private and publicly owned telecom carriers.

Mass media, denotes 3% of GNP, a fairly constant share in the past few years. The Finns are avid consumers of newspapers and books. Finland's per capita consumption of print media has been among the highest in the world for a long time. Almost 80% of magazines and 90% of newspapers are delivered to the subscriber's door. In book production in 1996, Finland ranked second in the world (26 titles per 10,000 inhabitants) right after Iceland. In 1998 almost all daily newspapers were also published in the Internet, as well we a fifth of non-dailies.

The share of high-tech exports of Finland's total exports in 1988 was only 4%, in 1997 as much as 16%. Technology policy has played an active role in Finnish economic policy. The level of R&D investments was 2,9% of GDP in 1998. Enterprises account for two thirds of all R&D expenditure, with a rapid annual increase in the past few years.

Finland thus has both a tradition as a print media country and a position as a high-tech country, and a leader in telecommunications technology; good prerequisites for information services in general and electronic information services in particular. In addition, political decision-makers have realized the opportunities that the information age will bring to Finland. The Finnish Information society strategy was revised during 1998, and defines seven spearhead projects to concentrate on, with the objective of guaranteeing the availability of information society services to the citizens and of creating practical examples to attract the users. The Ministry of Trade and Industry also acknowledges the importance of content creation: an extensive national R&D programme on content is being prepared.

8.1.2 Supply

MSSTUDY II covered the supply of electronic information services (EIS) for professional purposes, demand for electronic services by households for private and business purposes, and the infrastructure necessary for the development of the EIS market. National experts' opinions about future trends were also surveyed.

National and international suppliers of online or offline electronic information services do not compete very intensely with each other; rather they complete each other's supply. The number of publicly available databases in Finland, containing information for professional purposes, is about 300, i.e. one third of all Nordic databases. They are produced by about 160 database producers and hosted by 90 hosts, according to NORDGUIDE 1998. National hosts mostly provide information in Finnish to Finnish customers and make most of their revenue on the domestic market. There are only a few Finnish exporters of EIS. In general, being an EIS provider is not the main activity of an organization in Finland.

About a dozen national hosts are of commercial significance. In factual information, parallel versions of the same information are offered giving rise to a competition situation between Finnish and international suppliers. Big international suppliers, including their subsidiaries, have a strong position in real-time information services and in providing international information in almost any line of science, technology and business information.

A great number of premium-rate audiotex services has been moved to the Internet since 1994. About half of audiotex supply in Finland in 1997 was for professional business purposes. – Telematic value-added information networks are still used for a variety of purposes, mostly for banking services and business-to-business markets. Much of their information supply is also being moved to the Internet.- Offline media accounts for less than 10% of the total market for online and offline EIS.

Most of the companies with over 100 employees have Internet access. The Internet has brought along a variety of non-traditional EIS suppliers to the market. There are a number of operators providing Internet connections, and about seven key players. The past year has seen a number of mergers. – Multimedia market is constantly under turbulence, and big publishers have entered the market by acquisitions.

An estimate is made about the supply of EIS for professional purposes in Finland, amounting to about 980 million FIM (167 mecu) in 1997, including imports of foreign suppliers but not including exports of Finnish suppliers.

8.1.3 Demand

Surveying demand for electronic services by households in September, 1998, showed that 63% of respondents (i.e. 40% of all Finns aged 15 to 74) had a personal computer at home. Three in four persons in the age group whose home computer had access to information networks, used electronic services at home. That is, however, only 13% of all aged 15 to 74. Those in higher income categories have more often home computers with a network connection. Also, the higher the total income of the household, the more people were able to use services at work or place of study. About 30% of all population used electronic services at work or place of study. – One third of all people aged 15 to 74 did not have access to or did no need to use a PC.

A fifth of the Finns had a home PC with Internet connection. Of those, 30% used the Internet daily and 45% weekly. Young people in general are the most active users of communication services, but only a fifth of them at home. About 11% of the population used electronic information services at home computers.

Summarizing users of electronic services and types of services used: 13% of the population aged 15 to 74 were users of electronic services; 9% were users of communication services (e-mail, bulletin boards/newsgroups); 11% were users of information services (subjects of interest, newspapers etc., public institutions, online databases etc.); 10% were users of transaction services (electronic banking, real-time financial information, electronic shopping, software downloading, booking tickets); 2% used games and entertainment as well as electronic services for educational purposes and 1% were users of other services.

Daily or almost daily usage of the Internet has increased by 63% in a year from February, 1998 to February, 1999. Nevertheless, there are still people, particularly in the older age group, pensioners or the unemployed who do not use a PC or access electronic services via the Internet. It is a matter of special concern to guarantee the flow of information on public issues also to them.

8.1.4 Future developments and trends

A national expert survey was made to detect future developments in electronic information services. One third of the targets replied and stated their views. They expect that business information services in 2003 have a 55% share of the market for electronic information services in Finland, declining from 1997, and consumer services have a 45% share, increasing from 1997.

Assessing the average annual growth rate of the networks, the experts estimated the annual growth rate of Internet markets to exceed 15% from 1998 to 2003. As to content,

news market is expected to grow with over 15% annually, but growth of scientific, medical and technical and patent information will slow down. DVD, the digital versatile disc, will be the winner over CD-ROMs.

The respondents gave examples of commercially promising products or services, e.g. demographic or other consumer market information for marketing purposes, home shopping, real-time advising services for private investors, electronic journals and books, company analysis. The integration of microcomputers and mobile phones will bring about a growing variety of services via advanced mobile media. The future belongs to specific customised products and services. Brands and customising, commercialisation according to customer needs are the keys to success.

Attitudes and habits are the most significant market barriers, together with the fallacy that "all information is there and it is free" in the Internet. Technological literacy, media literacy is an important issue. Security measures are still to be established (e.g. electronic identifying measures and electronic payment methods). An electronic citizen card is really looked forward to. Reliability of information is one of the premium requirements. Training is as important as ever. Both information producers and users should be trained. Producers should be advised in making user-friendly high-quality products, users should get encouraging experiences in the benefit of electronic information services. The European Union should should decrease support to supply and increase support to demand. Controversially, at the same time it should invest in developing products particularly for the European market.

8.2 Converging technologies of the future

Telecommunications cluster has become the prime driver in Finnish industrial development nowadays; of the biggest 500 companies 27 belong to the telecom cluster. Their total turnover in 1998 amounted to 114 billion FIM (19 billion euro), Nokia having a lion's share of almost 70%. Telecommunications industry generates new branches of industry, e.g. the present electronics industry. Opportunities outweigh threats for innovative companies and industries. Closer co-operation with other clusters, e.g. with the forest cluster and welfare cluster, gives Finland great opportunities also internationally (Rajalahti 1999). Mr. *Jyrki Kettunen*, Research director of Metsä-Serla Corporation (the fourth largest forest industry and paper products company in Europe, staff of 15,000 people) has outlined a "reading-product-industry": the reader prints messages of digital communication on paper – which in turn calls for new equipment and new types of paper (Kettunen 1998).

In addition to the importance of co-operation between clusters, Mr. *Matti Alahuhta*, President of Nokia Mobile Phones, emphasizes content industry. Consumer markets of a

greater volume are only starting to grow; a number of operators and media houses snort at the starting gate. Banks, insurance companies and chains of stores are ready for the network race, too. Leaders of the revolution will be mobile communications and the Internet (Rajalahti 1999). Mobile phones, consumer electcronics and telecommunications are converging to one huge branch. Mobile phone manufacturers will concentrate on appliances for the ear, eye, mouth and fingertips; therefore manufacturers of telecommunication systems will have to concentrate on networks with more and more text and images in addition to speech. Operators will also look for new types of services. Software technology and know-how is one of the key areas also in the future. IT companies as well as professionals in content and software production also join the race.

Fortunately, political decision-makers and industry have realized the opportunities that the information society will bring to Finland.

New services and applications will encourage encounters in the Web for human communication and interaction. Such applications will be part of the infrastructure. New community communication networks (CCN) will be created: those operating only in the Internet and communities utilizing network services as part of their "real-world" activities. We shall see more and more possiblities for doing business and handling one's affairs via the Internet, e.g. virtual testing of household applicances. Network services will greatly ease the burden of e.g. the disabled in everyday life. User-friendly user interfaces will become more and more important in attracting the ordinary citizen to the net. Network services will free their user from the limits of place, equipment and sometimes also time, believes *Mr. Kari Lehtinen* of Helsinki Telephone Corporation (Lehtinen 1999). He looks forward to up-to-date and efficient services always available to the consumer and citizen. He also emphasized electrical identity, data protection and privacy. The national electronic citizen card is one of the first steps in this direction.

8.3 Theory and practice of the information society

We live in an age where, indeed, "media is the message". But what is the content of the message? Is the framework the only message? Does the network society only involve virtual pastime, games and entertainment? It has become so easy to bury oneself in the virtual world of soma, a psychotropic feel-good drug.

The main focus of Finland's first information society strategy was to build the necessary overall IT infrastructure. Very many information-society-related projects (450, total annual costs of a billion FIM, i.e. 168 million euro) were going on in Finland in 1998, with much fragmentation and overlapping (SITRA 1997). The newly revised information society strategy focuses on human issues, quality of life, knowledge and competitiveness. It calls for co-ordination and practical cases to attract the consumer to

the information society (IS). Seven spearhead projects have already been launched with more than 150 sub-projects to develop IS products and services.

Mr. *Kari Hintikka* takes a critical view in going through public discussion in print and on the Internet about information society issues from the beginning of 1998 to end-January, 1999 (Hintikka 1999). We need cost-awareness in acquiring equipment, we need adjusting, co-ordination, a view on the whole.

An essential issue raised by Mr. *Timo Kuronen* in his report (Kuronen 1998) is the ownership of information. Is it allowed to own information and what are the conditions for using information? Mr. Kuronen calls for defining a number of basic information resources to be maintained by public support and given to the citizens free-of-charge. Therefore the necessary software should be public shareware or freeware. Equipment and software have been acquired by schools and libraries – but what about updating and maintenance? Training the teachers and composing educational material? And learning to learn? Social and cultural issues have to be raised, and issues about the content of networks. Information society at its best could be a knowledge society, a know-how society. This call necessitates preventing the threatening social break-up in two, the "haves" and "have-nots".

Technical development is faster than human changes. Technology should be a means – and only a means, not an end – for developing the information society. A human being should always have the free choice in his own life. Technology management is an important issue, and so is knowledge management. Blind faith in technology makes the idea of information society only another ism to fulfil the ideological vacuum at the end of the 1900's. To inspire creativity, the information society should question its basis and discuss the underlying values. We have a long but challenging way to go from an information-technology society to a society of knowledge and understanding.

9. Executive summary

MSSTUDY II Finland is part of a multinational study for assessing the development of the markets for electronic information services (EIS) in the European Economic Area (EEA). The study was initiated within the European Commission's INFO2000 programme and was carried out in 1998–1999 in sixteen states of the EEA. The reference year was 1997. The study covered the supply of electronic information services (online and offline) for professional purposes in Finland, the demand for electronic services by households (usage and intensity of electronic services), description of the business environment, a survey on national experts' views about future trends of the markets and a best practice case of the regional information services network of Kuusamo.

Supply

The number of publicly available databases in Finland, containing information for professional purposes, is about 300, i.e. one third of all Nordic databases. They are produced by 160 database producers and available either online or on CD-ROMs, diskettes or as WWW databases. The number of hosts is about 90. There are about a dozen major hosts of commercial significance. Mostly, being an online host is not the main activity of an organisation. Instead, providing printed or other information products is the main activity.

Supply of electronic information services for professional purposes was surveyed by quantitative means. The word "professional" denotes electronic information services (both online and offline) used mainly for professional purposes in the working places (e.g. an enterprise, a research organisation or a government institution). To distinguish between professional and consumer EIS sometimes is like drawing a line in water. A thorough questionnaire, common to all participating countries, was partly translated into Finnish and sent to major online hosts, producers and representatives of foreign hosts as well as to major Internet and WWW providers, new media companies and publishing houses active in electronic publishing. The number of questionnaires sent totalled 96. The response rate, however, proved very low: usable responses accounted for 24% of the number of questionnaires sent, fully usable responses only 17% (fully usable = information about the respondent's EIS turnover included). The results of the supply survey thus did not prove comprehensive enough and had to be supplemented by desk research and contacts to Finnish experts.

Two approaches were used in interpreting the results. The *industry approach* aimed at finding out how strong the national EIS industry is. The overall supply of domestic information providers was considered in this approach, including exports but, of course,

not including imports. The *market approach* aimed at defining the size and volume of the EIS market, including domestic supply and imports but excluding exports.

Finland is an importer of electronic information for professional purposes. There are only a few major exporters of online EIS. The main market is in the European Union countries. Finnish suppliers make most of their revenue, however, in the domestic market. Businesses, particularly financial service companies are the prime users, mainly using real-time financial and news services. The turnover of domestic hosts, including exports, in 1997 is estimated at 227 million FIM (39 million ecu). Import is estimated to total 282–294 million FIM (48–50 million ecu).

Two operators dominate audiotex supply in Finland, Sonera (former Telecom Finland) and Helsinki Telephone Corporation. In Finland the operators do not determine the price the caller pays, but the service producers – contrary to elsewhere in Europe. Therefore one must consider the amount of money that consumers spend for premium-rate audiotex services. Audiotex is no great business for the suppliers. An increasing number of former audiotex services is being transferred to the World-Wide Web. The value of audiotex services for professional purposes in 1997 is estimated at 175 million FIM (30 million ecu). – Interactive open information networks for public use, value-added telematic networks, are provided in ASCII form and are thus truly "telematic". The main providers of telematic information services are the same as for audiotex services. Telematic networks in 1997 were used for 1,11 million hours (985 000 hours in 1994). The value of using telematic information networks in 1997 for more useful or professional purposes is estimated to total 36 million FIM (6 million ecu).

The period after 1994, the reference year of MSSTUDY I, has seen the explosion of the Internet. There is a number of operators in the Finnish market, about seven of them key commercial players. In addition, FUNET (Finnish University and Research Network) is a network service for universities, polytechnic colleges and the research community. Over 90% of companies with more than 100 employees have Internet access. Companies in general denote the major share of Internet connection services. Internet connections (WWW) in 1997 have been estimated at 170 million FIM (29 million ecu).

The company register of MSIG Finland (Multimedia Special Interest Group) in 1997 listed about 150 new media companies. Only about one tenth of them, however, had any significant role in the market as to annual revenues. The Association of Independent Producers in Finland (S.A.T.U = Suomen audiovisuaalisen alan tuottajat) gather together companies in the audio-visual branch in Finland. In 1997, the association had 82 member companies with a combined turnover of 454 million FIM (77 million ecu). The biggest and most significant new media companies in Finland are members of S.A.T.U multimedia section. In 1997 they made a total turnover of 59 million FIM (10 million ecu).

CD-ROMs are the main offline media for electronic information. The market of CD-ROMs for professional purposes in Finland in 1997 is estimated to total 35 million FIM (6 million ecu). A rough estimate may be made about the diskette market, about 13–15 million FIM (2,2–2,5 million ecu).

Using the exchange rate of 5,881 FIM to one ecu, we may thus estimate the supply of electronic information services for professional purposes in Finland at 970–980 million FIM (165–167 million ecu). This figure excludes exports but includes imports of EIS.

Demand

Demand for electronic services in Finland was surveyed by computer-aided telephone interviews (CATI) in September, 1998, in the framework of the national Labour Force Survey. A sample of 3000 randomly selected persons aged 15 to 74 were selected, and responses obtained from 91% of them. The unweighted sample corresponds to the wieghted total of 3,8 million Finns. The study aimed at establishing to what extent personal computers are used at home, school and work, how many PCs are connected to the network and what kinds of electronic services different population groups use.

In all, 63% of the respondents had access to a personal computer; about 40% of Finns age 15 to 74 had a PC at home. About 46% of the age group had access to a PC at work or place of study. About one third of the whole age group did not have access to a PC.

If the respondent had a computer at home, only about one half were provided with a modem or an ISDN connection. Three out of four persons aged 15 to 74, whose home computer had access to information network, used electronic services at home. This is, however, only 13% of all population in the age group. Users and types of electronic services used are summarized as follows: 13% of the population aged 15 to 74 were users of electronic services; 9% were users of communication services (e-mail, bulletin boards, newsgroups); 11% were users of information services (e.g. subjects of interest, newspapers etc.); 10% were users of transactional services (e.g. electronic banking, real-time financial information, electronic shopping etc.); 2% used games and entertainment as well as electronic services for educational purposes, and 1% were users of other services.

Infrastructure

Finland with her 5,1 million people is a world leader in telecommunications technology, with a readiness to adopt high technology in general. Telematics applications cover a wider range of fields, and the level of computerisation places Finland among the top ten in the world. The number of Internet servers (hosts) in Finland is also a world record (88,1 per 1000 inhabitants) and so is the number of mobile phones; at the end of 1998

the number of mobile phone lines exceeded that of conventional telephone lines. The liberalization of telecommunications networks got under way in 1985 and was completed in 1994. The process was easier than in most European countries because of the strong tradition of competitive private and publicly owned telecom carriers.

Mass media denotes 3% of GNP, a fairly constant share in the past few years. The Finns are avid consumers of newspapers and books. Finland's per capita consumption of print media has been among the highest in the world for a long time. Almost 80% of magazines and 90% of newspapers are delivered to the subscriber's door. As to circulation of newspapers per 1000 inhabitants Finland ranks third in the world after Norway and Japan (Norway 598 dailies, Japan 580 and Finland 453 dailies in 1997). In book production in 1996, Finland ranked second in the world (26 titles per 10,000 inhabitants) right after Iceland. In 1998 almost all daily newspapers were also published in the Internet, as well as a fifth of non-dailies.

The share of high-tech exports of Finland's total exports in 1988 was only 4%, in 1997 as much as 16%. Technology policy has played an active role in Finnish economic policy. The level of R&D investments was 2,9% of GDP in 1998. Enterprises account for two thirds of all R&D expenditure, with a rapid annual increase in the past few years.

Finland thus has both a tradition as a print media country and a position as a high-tech country, and a leader in telecommunications technology; good prerequisites for information services in general and electronic information services in particular. In addition, political decision-makers have realized the opportunities that the information age will bring to Finland. The Finnish information society strategy was revised during 1998, and defines seven spearhead projects to concentrate on, with the objective of guaranteeing the availability of information society services to the citizens and of creating practical examples to attract the users. The Ministry of Trade and Industry also acknowledges the importance of content creation: an extensive national R&D programme on content is being prepared.

Experts' opinions about future trends

A national expert survey aimed at detecting future trends in electronic information services. One third of the targets replied. They expect that business information services in 2003 have a 55% share of the market for electronic information services in Finland, declining from 1997, and consumer services have a 45% share, increasing from 1997.

The experts assessed that the annual growth rate of Internet markets exceeds 15% from 1998 to 2003. As to content, news market is expected to grow with over 15% annually,

but growth of scientific, medical and technical and patent information will slow down. DVD, the digital versatile disc, will be the winner over CD-ROMs.

The respondents gave examples of commercially promising products or services, e.g. demographic or other consumer market information for marketing purposes, home shopping, real-time advising services for private investors, electronic journals and books, company analysis. The integration of microcomputers and mobile phones will bring about a growing variety of services via advanced mobile media. The future belongs to specific customised products and services. Brands and customising, commercialisation according to customer needs are the keys to success.

Attitudes and habits are the most significant market barriers, together with the fallacy that "all information is there and it is free" in the Internet. Technological literacy, media literacy is an important issue. Security measures are still to be established (e.g. electronic identifying measures and electronic payment methods). An electronic citizen card is really looked forward to. Reliability of information is one of the premium requirements. Training is as important as ever. Both information producers and users should be trained. Producers should be advised in making user-friendly high-quality products, users should get encouraging experiences in the benefit of electronic information services. The European Union should decrease support to supply and increase support to demand. Controversially, at the same time it should invest in developing products particularly for the European market.

Case Kuusamo

Kuusamo is a municipality in northeastern Finland in the Koillismaa region. Kuusamo has a total area of 5,805 square kilometrs (one fifth of the area of Belgium) and a population of 18,400 inhabitants. Development of a local information society started in Kuusamo about ten years ago. Participating in national projects encouraged Kuusamo to develop its network of distribution channels for municipal services and to utilize information technology in carrying out such services. Major instruments of implementation consists of the physical network, network services and education of potential users. Early 1996 saw the first phases of the present development and summer 1996 marked a pilot of the services. February 1997 marked the publication of the Kuusamo Web (http://www.kuusamo.fi), at the same time as the Web of a larger regional project, the Koillismaa information network.

The Kuusamo Web includes gives access to the following information or services: schools and educational institutes, tourism, what to do, municipal information, maps, transactions, bulletin boards, administration and development projects. The user is able to make a "transaction" by e.g. posing a question to municipal authorities, making a complaint to the municipal consumer adviser, searching for a title in the library's

collections and making a reservation, ordering travel information and reserving accommodation and filling in an application to decline joining the municipala waste disposal system as well as registering to a course in the summer university of the northern Pohjanmaa province. The main benefit of the Kuusamo Web is, of course, improved accessibility to services. Further renewal and updating of the Kuusamo Web is going on in 1999.

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Appendix A:

Organisations and subcontractors participating in MSSSTUDY II

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Appendix B

Supply survey questionnaire with cover note

Arvoisa vastaanottaja!

KANSAINVÄLINEN KYSELY: SÄHKÖISTEN TIETOPALVELUJEN JA MUIDEN SÄHKÖISTEN PALVELUJEN MARKKINAT EUROOPAN TALOUSALUEEN MAISSA VUONNA 1997

Kohde, tarkoitus

EU:n INFO2000-ohjelmassa on käynnistetty vuotta 1997 koskeva kansainvälinen selvitys sähköisten tietopalvelujen ja muiden sähköisten palvelujen markkinoista (Assessing the situation of the markets for electronic information services in the European Economic Area, MSSSTUDY II).

Selvitys koskee sähköisten tietopalvelujen tarjontaa ja kysyntää sekä alan toimintaympäristöä ja se tehdään yhtenäisin menetelmin kuudessatoista Euroopan talousalueen maassa. Selvitys on jatkoa 1994 tilannetta kartoittaneeseen vastaavaan hankkeeseen. Tarkoituksena on saada makrotason kuva Euroopan tilanteesta (markkinoiden koko ja rakenne, alan vahvuudet ja heikkoudet yleiseurooppalaisella tasolla) vertailujen ja strategisten johtopäätösten tekemiseksi sähköisten tietopalvelujen kehittämiseksi. Euroopan komissio julkaisee työstä yhteiseurooppalaisen raportin vuoden 1999 keväällä.

Suomi

VTT Tietopalvelu on tehnyt Euroopan komissiolle edellisen sähköisten tietopalvelujen kartoituksen 1995 (VTT Research Notes 1750). VTT Tietopalvelu on valittu myös nykyisen selvityksen tekijäksi Suomessa.

Saatte kirjeen liitteenä tarjontaa koskevan kyselylomakkeen. Toivomme myönteistä suhtautu-mistanne kyselyyn. Osallistumisenne on tärkeää kokonaiskuvan saamiseksi Suomen ja edelleen koko Euroopan sähköisten (tieto)palvelujen markkinoista. Vastaustiedot käsitelllään luottamuksellisesti.

Palautus ja lisätiedot

Kysely pyydetään palauttamaan ***28.8.1998 mennessä*** VTT Tietopalvelun osoitteeseen. Lisätietoja antaa Merja Lehti, VTT Tietopalvelu, puh. (90) 456 4382, telekopio (90) 456 4374, sähköposti: Merja.Lehti@vtt.fi.

Tervetuloa mukaan kansainväliseen selvitykseen!

VTT Tietopalvelu

Merja Lehti, ekonomi, informaatikko

Liite Tarjontaa koskeva kyselylomake (alkuperäinen englanniksi, osittain suomennettu)

A Study for the Commission of the European Union / Selvitys Euroopan komissiolle

Supply Questionnaire / Tarjontaa koskeva kysely

The Supply of Electronic Services in Finland / Sähköisten palvelujen tarjonta Suomessa

Luottamuksellinen

Kysely koskee ajankohtaa 1.1.-31.12.1997 (sekä arviota vuodeksi 1998, jos mahdollista).

Kyselylomake on tarkoitettu sähköisiä tietopalveluja (electronic information services) tarjoaville organisaatioille.

Vastatkaa kaikkiin kysymyksiin mahdollisimman täydellisesti. Vastaukset käsitellään luottamuksellisesti.

Olkaa hyvä, palauttakaa täytetty kyselylomake 28.8.1998 mennessä osoitteeseen:

VTT Tietopalvelu
Merja Lehti
PL 2000
02044 VTT

Lisätietoja antaa:

informaatikko, ekon. Merja Lehti
puh. (09) 456 4382
faksi (09) 456 4374
sähköposti: Merja.Lehti@vtt.fi

Kyselyn vastaukset voi palauttaa myös faksilla tai sähköpostina. Voitte myös pyytää lomakkeen sähköisesti tietopalvelusihteeri Katriina Tepposelta (katriina.tepponen@vtt.fi), jolloin saatte sen sähköpostin liitetiedostona.

Kysymysryhmät

1. Tiedot organisaatiosta
2. Toiminnan laji
3. Henkilökunta
4. Kokonaisliikevaihto
5. Käyttäjäryhmät
6. Aihealueet
7. Multimedia
8. Internet
9. Sähköisten tietopalvelujen vienti
10. Kannattavuus

Kyselylomake *(Sulkeissa oleva numerointi liittyy vastausten käsittelyyn.)*

1. Details of Organisation / Tiedot organisaatiosta

Name of Organisation / Organisaation nimi (101):

_____

Principal Activity of the Organisation / Organisaation päätoimiala (102):

_____

Contact Person / Yhteyshenkilö (103):

_____

Address / Osoite (104):

_____

Telephone / Puhelin (105): Fax / Faksi (106):

_____

E-Mail-Address / Internet-Address / Sähköposti, Internet-osoite (107):

_____

Name of subsidiaries or branches included in the answers to this questionnaire / Niiden tytäryhtiöiden tai toimialojen nimet, joita vastaukset koskevat (108):

_____

Name of the parent organisation / Emoyhtiön nimi (109):

_____

Legal Status of your organisation / Organisaatiotyyppi:

( ) private company or public (state-owned) company / yksityinen yritys tai valtionyhtiö (110)
( ) public institution / julkinen organisaatio (esim. korkeakoulu, muu oppilaitos) (111)
( ) semi-public institution (e.g. chamber of commerce) / puolijulkinen organisaatio (esim.kauppakamari, yhdistys) (112)

2. Types of Activity / Toiminnan laji

Ilmoittakaa, mihin seuraavista luokista organisaationne kuuluu. Luokkia voi valita useita. **Merkitkää taloudellisesti (rahassa mitattuna) tärkein toiminto eli päätoiminto (the economically main activity) kahdella ruksilla.**

Määrittelyt ovat lomakkeen viimeisillä sivuilla. - Internet-tarjonta luokitetaan palvelun sisällön mukaan (esim. retrospective, real-time)

Online Distributors / Online-palvelujen tarjonta

( ) Retrospective online database services (201)

( ) Real-time financial information services (202)

( ) Other real-time information services, e.g. political and general news (newswire services) (203)

( ) Videotex services (204)

( ) Audiotex services (205)

( ) Other online services (206) - please specify:

_____

Offline Distributors / Offline-palvelujen tarjonta

( ) CD-ROM distributors (207)

( ) Diskette distributors (208)

( ) Distributors of other offline products (209) - please specify:

_____

Provider of Other Information Products / Muiden tietotuotteiden tarjonta

( ) Printed information (210)

( ) Other information products and services (211) - please specify:

3. Staff / Henkilökunta

Number of staff related to Electronic Information Services (EIS) and employed on the 31 December 1997 and 31 December 1998 (estimated) in full time equivalents / Sähköisten tietopalvelujen parissa toimivan henkilökunnan määrä 31.12.1997 ja 31.12.1998 (arvio) laskettuna kokopäiväisiksi työntekijöiksi:

1997 (301) _____ **1998 (arvio)** (302) _____

4. Total Income / Kokonaisliikevaihto

4.1 Market Income (Revenues) 1997 and 1998 (estimated) from Electronic Services / Sähköisten palvelujen liikevaihto (tulot asiakkailta) 1997 ja 1998 (arvio)

		1997	1998 (arvio)
I.	**Total = Total of II and III** (401, 431) **(in national currency) / Yhteensä kohdista 4.1. II ja 4.1. III (mk)**	========	========
II.	**Electronic Information Services** (402,432) **(in national currency) / Sähköiset tietopalvelut (mk)** (1)	_____	_____
	Prosentteina sähköisistä tietopalveluista:		
	Online Services / Online-palvelut		
	Retrospective online database services (2) (403,433)	_____ %	_____ %
	Real-time financial services (404,434)	_____ %	_____ %
	Real-time newswire services (405,435)	_____ %	_____ %
	Audiotex services (406,436)	_____ %	_____ %
	Further online services (407, 437), please specify: _____	_____ %	_____ %
	Offline Services / Offline-palvelut		
	CD-ROM-services (408, 438)	_____ %	_____ %
	Diskette services (409, 439)	_____ %	_____ %
	Other Offline services (410, 440) please specify: _____	_____ %	_____ %
		100 %	100 %
		=========	=========

(1) Multimedia, Internet ja WWW kuuluvat sähköisiin tietopalveluihin. Niistä tuleva liikevaihto jakaantuu kysymyksen 4 eri alakategorioihin.
(2) Including reference (not only bibliographic), full-text and numerical/facts services.

	1997	1998 (arvio)
III. Other Electronic Services (in national currency) / Muut sähköiset palvelut (mk) (411, 441)	_____	_____
Prosentteina muista sähköisistä palveluista:		
Electronic Advertising Services / Sähköinen mainonta (412, 442)	_____ %	_____ %
Electronic Transaction Services / Sähköinen kaupankäynti (413, 443)	_____ %	_____ %
Electronic Education Services / Sähköiset koulutuspalvelut (414, 444)	_____ %	_____ %
Electronic Entertainment Services / Sähköiset viihdepalvelut (415, 445)	_____ %	_____ %
Electronic Communication Services / Sähköiset viestintä- ja yhteyspalvelut (416, 446)	_____ %	_____ %
Further types of Electronic Services, please specify / Muut sähköiset palvelut, mitkä (417, 447) : _____	_____ %	_____ %
	100 %	100 %
	========	========

4.2 Other Income Sources (in national currency) / Muut tulolähteet (mk) (418, 448) _____ _____

Prosentteina muista tulolähteistä:

Printed products / Painotuotteet (419, 449)	_____ %	_____ %
Information brokering / Tietokonsultointi (420, 450)	_____ %	_____ %
Training, Seminars / Koulutus (421, 451)	_____ %	_____ %
Private Subsidies / Yksityinen tuki (esim. lisenssimaksut) (422, 452)	_____ %	_____ %
Public Subsidies / Julkinen tuki (423, 453)	_____ %	_____ %
Other income sources, please specify: / Muut tulolähteet, mitkä: (424, 454)		
_____	_____ %	_____%
	100 %	100 %

5. User Groups / Käyttäjäryhmät

Market Income (Revenues) from Electronic Services 1997 by User Groups (in %) / Sähköisten palvelujen liikevaihto 1997 käyttäjäryhmittäin, prosenttiosuudet

Total Income from Electronic Services = 100 % (4.1.I) / Sähköisten palvelujen kokonaisliikevaihto = 100% (kysymys 4.1.I)

	1997
Business / Yrityskäyttäjät	
Financial Services (Banking, Insurance, etc.) / Rahoituspalvelut (pankit, vakuutus jne.) (501)	_____ %
Other Commercial Services (Trade, Traffic, Consulting etc.) / Muut kaupalliset palvelut (kauppa, liikenne, konsultointi jne.) (502)	_____ %
Manufacturing (industrial sector) / Teollisuus (503)	_____ %
Other Business / Muut yrityssektorit (504)	_____ %
Public Sector / Julkinen sektori	
Education, Public Research Institutes, Libraries / Koulutus, opetus, julkiset tutkimuslaitokset, kirjastot (505)	_____ %
Government, Administration / Valtiovalta, julkinen hallinto (valtion, kunnan) (506)	_____ %
Private Households (Consumers) / Kotitaloudet (kuluttajat (507)	_____ %
	100 %
	======

6. Subject Areas / Aiheet

Market Income (Revenues) from Electronic Services 1997 by Subject Areas / Sähköisten palvelujen liikevaihto 1997 aihealoittain prosenttiosuuksina

Total Income from Electronic Services = 100 % (4.1.I) / Sähköisten palvelujen kokonaisliikevaihto = 100 % (kysymys 4.1.I)

1997

I. Business information / Talous- ja yritystieto

- Financial Information / Finanssitiedot (pörssitiedot, yritysten tulos- ja tasetiedot ym.) (601) _____ %
- Credit Information / Luottotiedot (602) _____ %
- Other Company Information / Muut yritystiedot (603) _____ %
- News (Business Oriented) / Uutiset (liike-elämän uutiset) (604) _____ %
- Other Business and Economic Information / Muu talous- ja yritystieto (605) _____ %

II. Scientific, Technical, Medical Information / Luonnon-tieteen, tekniikan ja lääketieteen tiedot (606) _____ %

III. Legal Information / Oikeustiet. ja lakitieto (607) _____ %

IV. Patent Information / Patenttitieto (608) _____ %

V. Public Information (without legal and scientific information etc., including government information at different levels) / **Julkista hallintoa koskeva tieto** (609) _____ %

VI. Consumer Oriented Information / Kuluttajille tarkoitettu tieto

- News (Consumer Oriented) / Uutiset (610) _____ %
- Other Consumer Information (Travel, Tourism,
- Entertainment, Shopping etc.) / Muu kuluttajia kiinnostava _____ %
  tieto (matkailu, viihde, ostokset jne.) (611)

VII. Other Subject Areas / Muut aiheet (612)

Please specify / Mitkä: _____ _____ %

100 %

7. Multimedia (Online and Offline) / Multimedia (online ja offline)

	1997	1998 (arvio)
Total Revenues (in national currency)	_____	_____
Kokonaisliikevaihto (mk) (*)		
(701,704)		
Prosentteina multimedian kokonaisliikevaihdosta:		
Text with graphic, tables, standing pictures (images) / Teksti + grafiikka, taulukot, kiinteät kuvat (702,705)	_____ %	_____ %
Text with audio and/or video (motion pictures) / Teksti + audio ja/tai video (liikkuvat kuvat) (703, 706)	_____ %	_____ %
	100 %	100 %
	=========	=========

8. Internet

Only if you realise Revenues on the World -Wide Web /Vain, jos organisaatiollanne on liikevaihtoa WWW:stä

Total revenues (in national currency) / Kokonais-liikevaihto (mk) (801, 804) **(*)**	1997	1998 (arvio)
Prosentteina WWW-liikevaihdosta:		
Revenues from Electronic Information Services / Mikä osuus WWW-liikevaihdostanne tulee sähköisistä tietopalveluista? (802, 805)	_____ %	_____ %
Revenues from other Electronic Services - please specify electronic services / Mikä osuus WWW-liikevaihdostanne tulee muista sähköisistä palveluista? Mistä: (803, 806)		
_____	_____ %	_____ %
	100 %	100 %
	=========	=========

(*) Tämä sisältyy kysymykseen 4, mutta on siellä todennäköisesti jakaantuneena useaan eri kohtaan palvelun tyypin mukaan. Tässä omana kokonaisuutenaan.

9. Exports of Electronic Information Services / Sähköisten tietopalvelujen vienti

1997

I. Total Exports (in national currency) / Kokonaisvienti (mk) (901) _____

II. World Regions / Vienti alueittain prosentteina kokonaisviennistä

Total Exports = 100 % / Kokonaisvienti = 100 %

Europe / Eurooppa

- European Union, Norway, Iceland / EU, Norja, Islanti (902) _____ %
- Switzerland / Sveitsi (903) _____ %
- Eastern Europe / Itä-Eurooppa (904) _____ %

America / Amerikka

- USA (905) _____ %
- Canada / Kanada (906) _____ %
- Latin America / Latinalainen Amerikka (907) _____ %

Asia / Aasia

- Japan / Japani (908) _____ %
- Further Asian Countries / muut Aasian maat (909) _____ %

Other Countries / Muut maat (910) _____ %

100 %

=========

10. Profitability / Kannattavuus

10.1 Were your offerings of Electronic Information Services profitable in 1997? / Olivatko sähköiset tietopalvelunne kannattavia 1997?

	Yes/Kyllä	No/Ei
In terms of operating costs / Käyttökustannuksista laskettuna (käyttökatteella mitattuna) (1001)	( )	( )
In terms of total costs / Kokonaiskustannuksista laskettuna (including all investments) (investoinnit mukaanlukien) (1002)	( )	( )

10.2 If not, when do you expect to cover the costs of your EIS-offerings? / Jos eivät olleet, milloin odotatte kattavanne sähköisten tietopalvelujen kustannukset?

	1998	1999	Later Myöhemmin	Never Ei koskaan
Operating costs / Käyttökustannukset (1003)	( )	( )	( )	( )
Total costs / Kokonaiskustannukset (1004)	( )	( )	( )	( )

Kiitos yhteistyöstä.

Olkaa hyvä, palauttakaa täytetty kyselylomake 28.8.1998 mennessä osoitteeseen:

VTT Tietopalvelu
Merja Lehti
PL 2000
02044 VTT

Lisätietoja antaa:

informaatikko, ekon. Merja Lehti
puh. (09) 456 4382
faksi (09) 456 4374
sähköposti: Merja.Lehti@vtt.fi

Kyselyn voi palauttaa myös faksilla tai sähköpostina. Voitte myös pyytää lomakkeen sähköisesti tietopalvelusihteeri Katriina Tepposelta (katriina.tepponen@vtt.fi), jolloin saatte sen sähköpostin liitetiedostona.

Definitions (alphabetical listing) / Käsitteet

Audiotex services (suppliers) = organisations delivering online information services whereby the users receive information aurally *("voice information services")* - focused on so-called "premium rate services"

Electronic Advertising Services = Electronic services where the principal objective is an *advertising action* (e.g. for a product or a service or an institution) rather than the delivery of information content; incl. so-called "banners".

Electronic Communication Services = Electronic services where the principal objective is *communication* (e.g. connecting people via electronic media like E-Mail or teleconferencing) rather than the delivery of information content.

Electronic Entertainment Services = Electronic services where the principal objective is the *delivery of entertainment content* (e.g. games, movies) rather than the delivery of information content.

Electronic Information Services (EIS) = *all services delivering information content* via electronic online and offline media, that means: not in a printed version. Online means delivery via telecommunication links. Offline means delivery without the usage of any telecommunications networks, i.e. the delivery on electronic (magnetic) tapes, discs or diskettes.

Electronic Services (ES) = a number of *different services delivered via electronic online and offline media*: information services, advertising services, transaction services (shopping, ordering, booking, banking services etc.), entertainment services (e.g. computer games), communication services (e. g. E-Mail, teleconferencing).

Electronic Transaction Services = electronic services where the principal objective is a *transaction* (e.g. ordering, booking, shopping, banking activity) rather than the delivery of information content.

Electronic (E-)Mail services = services which permit users to send messages electronically to specified recipients or receive messages from senders.

Internet = today the most used world-wide public telecommunication network (switched, point to point). Internet developed from the ARPANET in the US which was focused on scientific users. INTERNET is more and more used also by commercial users and today open for a great variety of applications. INTERENET uses the HTML-standard. Most of the services are offered via the World Wide Web (WWW).

Offline distributors = organisations offering for sale or lease unitised electronic information products such as **CD-ROMs, diskettes, magnetic tapes** etc.

Online distributors (Hosts) = organisations delivering Electronic Information Services and other types of electronic services directly to their users via telecommunication links.

Optical information media = information products on various types of discs which use analogue or optical storage technology, including **CD-ROM**.

Real-time Information Services = EIS delivered in maximal 20 minutes after the "event" in the financial and stock exchange area (financial services) or EIS-offerings with at least a daily updating (e. g. newswire services)

Retrospective Online Database Services = online information services delivering information from retrospective databases which may contain different kinds of data (reference, factual, numeric data, full-text, images etc.) in a number of subject areas (news, financial and business data, scientific and technical information, legal information etc.) for a number of retrospective time spans or time periods (also sometimes called archival database services).

Revenue = net revenue = net sales = turnover = liikevaihto

Staff = Part-time or full-time employees with contracts for definite time periods. Freelancers are not included.

Videotex services (suppliers) = Organisations delivering online information services and other types of online services page by page or screen by screen, rather than character by character.

Appendix C

Demand survey questionnaire

EU:N SÄHKÖISTEN PALVELUJEN TUTKIMUS (TYTI, työvoimatiedustelun yhteydessä syyskuussa 1998)

Kysymykset

i1a. Onko Teillä tietokone käytettävissä kotonanne?
1 kyllä
2 ei

i1b. Käytättekö, tai onko Teillä mahdollisuus käyttää tietokonetta työpaikallanne, koulussa tai muussa oppilaitoksessa?
1 kyllä
2 ei

i1d. *(Kysytään, jos 1a=1)* Onko kotitietokoneenne (tai joku niistä) ns. työsuhdekone, tai hankittu pääasiassa yritystoiminnan vuoksi?
1 kyllä
2 ei

Jos ei ole tietokonetta kotona eikä töissä, kysytään:

i1c. Onko Teillä tietokone käytettävissänne jossain muualla?
1 kyllä -> *i1e*
2 ei -> *i2a*

i1e. Onko käyttämässänne tietokoneessa CD-ROM-asema?
1 kyllä -> *i3b*
2 ei -> *i4c*

Jos ei missään käytettävissä tietokonetta, kysytään i2a ja i2b:

i2a. Luuletteko, että Teillä tulee olemaan tietokone käytettävissä seuraavan 2 vuoden kuluessa kotonanne?
1 kyllä
2 ei
9 EOS

i2b. Entä työpaikallanne, koulussa tai muussa oppilaitoksessa?
1 kyllä
2 ei
9 EOS

Tietokoneettomat siirtyvät sitten kysymykseen i11a

i3a. *(Kysytään jos 1a=1)* Onko kotitietokoneessanne CD-ROM-asema?
1 kyllä -> *i3b*
2 ei
9 EOS

i3b. *(Jos 3a=1)* Käytättekö CD-rom tuotteita, kuten sanakirjoja, opiskeluaineistoja, tietosanakirjoja tai vastaavia poislukien CD-rom pelit, kotonanne ?
TAI *(jos 1e=1)* : Käytättekö tällä koneella CD-rom tuotteita, kuten sanakirjoja, tietosanakirjoja tai vastaavia poislukien CD-rom pelit, muuhun kuin työhön tai päätoimiseen opiskeluun liittyen (yksityistarkoituksiin)?
1 kyllä
2 ei

i3c. *(Kysytään jos 1b=1)* Onko työpaikalla tai oppilaitoksessa käyttämässänne tietokoneessa CD-ROM-asema?

1 kyllä -> *i3d*
2 ei -> *i4*
9 EOS

i3d. *(Jos 3c=1)* Käytättekö CD-rom tuotteita (kuten sanakirjoja, opiskeluaineistoja, tietosanakirjoja tai vastaavia) poislukien CD-rom pelit, työpaikalla tai oppilaitoksessa? TAI *(jos 1e=1)*: Käytättekö CD-ROm-tuotteita työhön tai päätoimiseen opiskeluun liittyen?

1 kyllä
2 ei

i4a. *(Jos 1a=1)* Voiko kotitietokoneellanne olla yhteydessä sähköisiin tietoverkkoihin, kuten sähköpostiin tai internettiin?

1 kyllä
2 ei

i4b. *(Jos 1b=1)* Voitteko olla työpaikan / oppilaitoksen tietokoneella yhteydessä sähköisiin tietoverkkoihin, kuten sähköpostiin tai internettiin tai sisäiseen tietoverkkoon?

1 kyllä
2 ei

i4c. *(Jos 1c=1)* Voitteko olla käyttämällänne tietokoneella yhteydessä sähköisiin tietoverkkoihin, kuten sähköpostiin tai internettiin?

1 kyllä
2 ei -> *i11a*

<u>i4d.</u> *(Kysytään jos on kotitietokone eli 4a=1)*
Keneltä olette hankkineet internet ja sähköposti yhteyden?
1 INET / Sonera (entinen Tele)
2 Kolumbus / paikallinen puhelinyhtiö (Finnet-yhtiöt)
3 Saunalahden serveri (entinen Nettilinja, DLC, Dystopia ym.)
4 Eunet
5 jokin muu -> **i4dmuu:** Mikä muu? _____

i5a. *(Jos 4a=1)* Oletteko kotitietokoneellanne yhteydessä sähköisiin tietoverkkoihin, kuten sähköpostiin tai internettiin:

TAI *(jos 4c = 1)*: Oletteko yksityisasioihinne liittyen käyttämällänne tietokoneella yhteydessä sähköisiin tietoverkkoihin, kuten sähköpostiin tai internettiin:

1 päivittäin
2 viikottain
3 kuukausittain
4 harvemmin kuin kerran kuussa
5 vai ette koskaan? *Jos ei koskaan niin ->i11, mutta jos kotona internetyhteys niin -> i8*

i5b. *(Jos 4b=1)* Oletteko työpaikaltanne/oppilaitoksesta yhteydessä sähköisiin tietoverkkoihin, kuten sähköpostiin tai internettiin:

TAI *(jos 4c = 1)*: Entä oletteko työn tai opiskelun takia yhteydessä sähköisiin tietoverkkoihin:

1 päivittäin
2 viikottain
3 kuukausittain
4 harvemmin kuin kerran kuussa
5 vai ette koskaan?
Jos ei koskaan niin ->i11, mutta jos kotona internetyhteys niin -> i8

Ne, jotka käyttävät tietokonetta muualla kuin töissä tai kotona, siirtyvät nyt kysymykseen i11.

i5c. *(Jos 5a ei ole 5)*
Kuinka kauan kestää keskimäärin yksi tietoverkkoyhteytenne kotoa?

1 enintään 5 minuuttia
2 6 - 15 minuuttia
3 16 - 30 minuuttia
4 31 - 60 minuuttia
5 yli tunnin - 3 tuntia
6 enemmän kuin 3 tuntia

i5d. *(Jos 5b ei ole 5)* Kuinka kauan kestää keskimäärin yksi tietoverkkoyhteytenne työpaikalta/ oppilaitoksesta?

1 enintään 5 minuuttia
2 6 - 15 minuuttia
3 16 - 30 minuuttia
4 31 - 60 minuuttia
5 yli tunnin - 3 tuntia
6 enemmän kuin 3 tuntia

Kysymyssarjan 6 a-kohdat kysytään niiltä, jotka käyttävät kotona internettiä (4a=1 JA 5a ei 5).
6 b-kohdat kysytään niiltä, jotka käyttävät internettiä työpaikalla/oppilaitoksessa (4b=1 JA 5b ei 5).

i6.1a. Käytättekö sähköpostia kotona? 1 kyllä 2 ei

i6.1b. Käytättekö sähköpostia työpaikalla / oppilaitoksessa sen ulkopuolelle suuntautuvaan viestintään? 1 kyllä 2 ei

i6.2a. Seuraatteko kotitietokoneella internetin tai vastaavan ns. news-ryhmiä tai muita keskustelutauluja? 1 kyllä 2 ei

i6.2b. Seuraatteko työpaikalla/oppilaitoksessa internetin tai vastaavan ns. news-ryhmiä tai muita keskustelutauluja? 1 kyllä 2 ei

i6.3a. Käytättekö kotitietokonetta ns. chattailuun tai irkkailuun? 1 kyllä 2 ei

i6.3b. Harrastatteko ns. chattailua tai irkkailua työpaikan / oppilaitoksen tietokoneella? 1 kyllä 2 ei

i6.4a. Etsittekö kotitietokoneella tietoverkoista Teitä kiinnostavia asioita? 1 kyllä 2 ei

i6.4b. Etsittekö työpaikan /oppilaitoksen tietokoneella tietoverkoista Teitä kiinnostavia asioita? 1 kyllä 2 ei

i6.5a. Luetteko kotitietokoneella tietoverkoista elektronisia sanomalehtiä tai muita lehtiä tai dokumentteja? 1 kyllä 2 ei

i6.5b. Luetteko työpaikan / oppilaitoksen tietokoneella elektronisia sanomalehtiä tai muita lehtiä tai dokumentteja tietoverkoista? 1 kyllä 2 ei

i6.6a.	Käytättekö kotitietokoneella ns. online tietokantoja tai muita sähköisiä tietopalveluja (esim. kirjastojen luetteloita tai aikatauluja)?	1 kyllä 2 ei
i6.6b.	Käytättekö ns. online-tietokantoja tai muita sähköisiä tietopalveluja työpaikan/oppilaitoksen tietokoneella?	1 kyllä 2 ei
i6.7a.	Käytättekö kotitietokoneella sähköisiä pankkipalveluja?	1 kyllä 2 ei
i6.7b.	Käytättekö sähköisiä pankkipalveluja työpaikan / oppilaitoksen tietokoneella?	1 kyllä 2 ei
i6.8a.	Seuraatteko kotitietokoneella reaaliaikaista taloudellista tietoa, kuten pörssi- ja valuuttakursseja, sähköisistä tietoverkoista?	1 kyllä 2 ei
i6.8b.	Seuraatteko työpaikalla / oppilaitoksessa reaaliaikaista taloudellista tietoa, kuten pörssi- ja valuuttakursseja, sähköisistä tietoverkoista?	1 kyllä 2 ei
i6.9a.	Ostatteko tai tilaatteko kotitietokoneella palveluita tai tavaroita tietoverkoista?	1 kyllä 2 ei
i6.9b.	Ostatteko tai tilaatteko työpaikalla / oppilaitoksessa palveluita tai tavaroita tietoverkoista?	1kyllä 2 ei
i6.10a.	Imuroitteko kotitietokoneella ohjelmia tai muuta ns. softaa tietoverkoista?	1 kyllä 2 ei
i6.10b.	Imuroitteko työpaikalla / oppilaitoksessa ohjelmia tai muuta ns. softaa tietoverkoista?	1 kyllä 2 ei

i6.11 Varaatteko kotitietokoneella matka-, elokuva tai teatteri- tai muita lippuja tietoverkkojen kautta? 1 kyllä 2 ei

i6.12. Pelaatteko kotitietokoneella online-pelejä (ns. verkkopelejä), tai käytättekö muita elektronisia viihdepalveluja internetissä tai muissa tietoverkoissa? 1 kyllä 2 ei

i6.13a. Oletteko etäopiskellut tai käyttänyt koulutuspalveluja tietoverkkojen kautta kotonanne? 1 kyllä 2 ei

i6.13b. Oletteko etäopiskellut tai käyttänyt koulutuspalveluja tietoverkkojen kautta työpaikalla/oppilaitoksessa? 1 kyllä 2 ei

i6.14a. Oletteko ollut kotitietokoneella yhteydessä kunnan, valtiovallan tai muiden julkisten tahojen internet sivuille tai vastaaviin sähköisiin tietoihin? 1 kyllä 2 ei

i6.14b. Oletteko ollut työpaikalta/oppilaitoksesta yhteydessä kunnan, valtiovallan tai muiden julkisten tahojen internet sivuille tai vastaaviin sähköisiin tietoihin? 1 kyllä 2 ei

i6.15a. Käytättekö jotain muita tietoverkkojen palveluita, joita ei ole edellä käsitelty, kotitietokoneellanne? 1 kyllä 2 ei

i6.15amuu: Mitä? _____

i6.15b. Käytättekö jotain muita tietoverkkojen palveluita, joita ei ole edellä käsitelty, työpaikan/oppilaitoksen tietokoneella? 1 kyllä 2 ei

i6.15bmuu: Mitä? _____

Kysytään niiltä, jotka käyttävät kotona internettiä (4a=1 JA 5a ei 5).

i7a. Kun ajattelette lähivuosien tietoverkkojen ja sähköisten palvelujen käyttöä, niin käytättekö niitä vuoden parin päästä kotoa:

1 enemmän kuin nyt

2 saman verran kuin nyt

3 vai vähemmän kuin nyt?

9 vaikea sanoa

Kysytään niiltä, jotka käyttävät työpaikalla/oppilaitoksessa internettiä (4b=1 JA 5b ei 5).

i7b. Kun ajattelette lähivuosien tietoverkkojen ja sähköisten palvelujen käyttöä,

niin käytättekö niitä vuoden parin päästä työpaikalta / oppilaitoksesta:

1 enemmän kuin nyt

2 saman verran kuin nyt

3 vai vähemmän kuin nyt?

9 vaikea sanoa

Kysytään, jos on kotitietokone jossa internet (1a=1 ja 4a=1)

i8. Kuinka paljon teidän kotitaloutenne on käyttänyt rahaa viimeisen kuukauden aikana sähköisen tietoverkon kuukausi- ja yhteysmaksuihin, mukaanlukien siitä aiheutuneet puhelinkulut? **Karkea arvio markkoina _____**

i9. Kuinka paljon kotitaloudessanne on käytetty likimäärin arvioituna viime vuoden syyskuusta lukien rahaa tavaroiden, kirjojen ja ohjelmistojen yms. ostoon tietoverkkojen kautta?

Karkea arvio markkoina _____

Kysytään, jos on kotitietokone (1a=1)

i10. Kuinka paljon kotitaloudessanne on käytetty likimäärin arvioituna viime vuoden syyskuusta lukien rahaa tietokoneen, sen oheislaitteiden, modeemien, ohjelmien yms. ostoon?

Karkea arvio markkoina _____

Loput kysytään kaikilta:

i11a. Onko teillä omassa käytössänne matkapuhelin?

1 kyllä

2 ei

jos kyllä:

i11b. Jos olette työssäkäyvä, onko matkapuhelin käytössä:

1 vain työaikana

2 sekä työaikana että sen ulkopuolella

3 vain työajan ulkopuolella?

4 EI OLE TYÖSSÄ

i12. Kuinka monta henkeä kotitalouteenne kuuluu itsenne mukaanlukien? _____

i13. kun Mihin seuraavista tuloluokista koko taloutenne yhteenlasketut kuukausitulot sijoittuvat, verot on vähennetty? HUOM: NETTOTULOT!

MYÖS ELÄKETULOT, YRITTÄJÄTULOT, OPINTOTUKI,

TYÖTTÖMYYSKORVAUKSET YM. OTETAAN MUKAAN.

1 alle 4500 mk

2 4500 - 7500 mk

3 7501 - 15 000 mk

4 15001 - 24 000 mk

5 yli 24000 mk

6 EI TULOJA

Appendix D

National expert survey questionnaire

TIETOPALVELU 8.2.1999

Future Trends 1998 – 2003. National Expert Survey in the Area of Electronic Information Services 1997-98 in Finland

Tulevaisuudennäkymät 1998 - 2003. Asiantuntijoille suunnattu mielipidekysely sähköisistä tietopalveluista Suomessa (perustuu tilanteeseen 1997-1998)

EU:n INFO2000-ohjelmassa on meneillään kansainvälinen selvitys sähköisten tietopalvelujen ja muiden sähköisten palvelujen markkinoista vuonna 1997/1998 (Assessing the situation of the markets for electronic information services in the European Economic Area, MSSTUDY II = member states study). Se tehdään yhtenäisin menetelmin kuudessatoista Euroopan maassa. Suomessa projektista vastaa VTT Tietopalvelu.

Selvitykseen kuuluu asiantuntijoille suunnattu kysely tulevaisuudennäkymistä kussakin maassa. Se muodostuu kahdeksan kysymyksen sarjasta. Kysely on **luottamuksellinen** eivätkä vastaajien nimet käy ilmi laadittavasta raportista. Lähetämme Teille myöhemmin yhteenvedon asiantuntijakyselyn tuloksista. Kyselyyn voi vastata äidinkielellä tai englanniksi. Voitte vastata kysymyksiin valintanne mukaan; kaikkia kohtia ei tarvitse täyttää.

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Toivomme Teidän arvioitanne ja näkemyksiänne alan asiantuntijana.

Yhteistyöterveisin

VTT Tietopalvelu

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Future Trends 1998 – 2003. National Expert Survey in the Area of Electronic Information Services 1997-98 in Finland.

Tulevaisuudennäkymät 1998 - 2003. Asiantuntijoille suunnattu mielipidekysely sähköisistä tietopalveluista Suomessa (perustuu tilanteeseen 1997-1998)

Huom. Seuraavissa kysymyksissä *EIS* = sähköiset tietopalvelut (electronic information services). Sähköiset tietopalvelut käsittävät myös ns. offline-palvelut (esim. CD-ROM, levykkeet). *Electronic business information services = ammatilliseen käyttöön* (liike-elämän, tutkimuksen, julkishallinnon tarpeisiin) tarkoitetut sähköiset tietopalvelut.

1. Electronic Business Information Services*) and Consumer Services**).

Ammatilliseen käyttöön (esim. liike-elämä, tutkimus, julkishallinto) tarkoitetut sähköiset tietopalvelut ja kuluttajille tarkoitetut palvelut

1.1 ***Mikä osuus A) ammatilliseen käyttöön tarkoitetuilla ja B) kuluttajille tarkoitetuilla sähköisillä tietopalveluilla on sähköisten tietopalvelujen kokonaismarkkinoista Suomessa 1997 ja 2003 (prosentteina sähköisten tietopalvelujen kokonaismarkkinoiden liikevaihdosta)?***

	1997	*2003*
	% of total EIS-market	
	% sähköisten tietopalvelujen kokonaismarkkinoista	
A) Business Information Services *	_____	_____
B) Consumer Services**	_____	_____
yht.	100 %	100 %

**) Business Information Services = electronic information services (online and offline) used mainly for professional purposes in the working places (e.g. in an enterprise, a research organisation or a government institution). Esim. DIALOG, FT Information, Lexis-Nexis, STN International, Startel, TT-Tietopalvelut.*

***) Consumer Services = electronic information services (online and offline) used mainly by individuals for private purposes in private households (homes). Esim. Infotel/Kolumbus, Telesampo/INET Keskuskatu*

1.2 ***Reasons for your assessment / Syitä arviointiinne:***

2. Development of electronic business information markets in Finland.
Ammatilliseen käytöön tarkoitettujen sähköisten tietopalvelujen markkinanäkymät Suomessa

2.1 ***Kuinka monta prosenttia on tällaisten sähköisten tietopalvelujen kokonaismarkkinoiden liikevaihdon keskimääräinen vuotuinen kasvu Suomessa 1995-2003?***

	Keskimääräinen vuotuinen kasvu, %	
1995/1996	12,2	*yy)*
1996/1997	_____	
1998-2003	____	

yy) = online-tietopalvelujen liikevaihdon muutos 1995/96; Joukkoviestimet 1998, s. 93

2.2 ***Reasons for your assessment / Syitä arviointiinne:***

3. Markets for electronic business information services: Online and Offline.
Ammatilliseen käyttöön tarkoitettujen sähköisten tietopalvelujen markkinat (online ja offline)

3.1 ***Mikä on erilaisten jakelukanavien (channels, distribution media) osuus markkinoista Suomessa 1997 ja 2003 (% kokonaismarkkinoista)?***

		Markkinaosuus, %	
	Esim.	*Teidän arvionne*	
	1997	1997	2003
Reaaliaikaiset online-tietopalvelut (Real-time information services, esim. Reuters, Startel)	60	_____	_____
Online-tietopankit (Online retrospective database services, esim.Dialog, STN)	33	_____	_____
Offline (esim. CD-ROM, levykkeet)	7	_____	_____
yht.	100 %	100 %	100 %

3.2 ***Reasons for your assessment / Syitä arviointiinne:***

3.3 ***Online-tietopankkien (online retrospective database services, erikseen verkot ja sisältö) ja offline-välineiden markkinoiden keskimääräinen vuotuinen kasvu on vuosina 1998-2003 mielestäni seuraava.***

HUOM. Online-tietopankit <u>eivät</u> tässä sisällä reaaliaikaisia palveluja (kuten Reuters, Startel), joita ei siis arvioida tässä kysymyksessä.
Merkitkää ruksilla.

Area	***More than 20%***	***Between 15 and 20%***	***Between 8 and 15%***	***Between 0 and 8%***	***Stagnation/ Decline***
1. Online-tietopankit					
1.1 Verkot (Networks)					
Internet					
Langattomat (kuten GSM, UMTS)					
Telmo-verkot (kuten Infotel, Telesampo)					
Muut verkot: mitkä?					
1.2 Sisältö (Content)					
Credit information					
News					
Other business information, e.g. company info					
Legal information					
Scientific, technical, medical information, patents					
Other areas:					
2. Offline-väli-neet					
CD-ROM					
Diskettes					
DVD-ROM					
Other formats*					

3.4 Mitkä ovat arviointinne syyt (erikseen verkkojen ja sisällön suhteen)?

Networks / Verkot

Content / Sisältö

4. New Business Areas.

Uudet liiketoiminta-alueet

4.1 ***Sähköisiä tietopalveluja (online ja offline) tarjoavien organisaatioiden kokonaisliikevaihdosta tulee sähköisestä mainonnasta ja sähköisestä kaupasta vuonna 2003 seuraava osuus:***

Area	*More than 20%*	*Between 15 and 20%*	*Between 8 and 15%*	*Between 0 and 8%*	*Stagnation/ Decline*
Sähköinen mainonta					

Area	*More than 20%*	*Between 15 and 20%*	*Between 8 and 15%*	*Between 0 and 8%*	*Stagnation/ Decline*
Sähköinen kaupankäynti					

4.2 ***Reasons for your assessment / Syitä arviointiinne:***

4.3 ***Sähköisiä tietopalveluja tarjoavat organisaatiot ja sähköisten tietopalvelujen välittäjät (tietopalvelut, tietokonsultit) ansaitsevat tulevaisuudessa enemmän jalostamalla, analysoimalla ja muokkaamalla tietotuotteita kuin vain tarjoamalla "raakadataa".***

Mainitkaa kolme mielestänne kaupallisesti lupaavaa tuote- tai palveluesimerkkiä. Ilmoittakaa samalla syy valintaanne.

Ensimmäinen esimerkki ja valintanne syy:

Toinen esimerkki ja valintanne syy:

Kolmas esimerkki ja valintanne syy:

5. Product Policy. Tuotepolitiikka

5.1 ***Ammatilliseen käyttöön tarkoitettua sähköistä tietoa tarjoavien organisaatioiden liikevaihdosta tulee multimediatuotteista vuonna 2003 seuraava osuus (multimedia sisältää audio- ja videoelementit).***

Area	*More than 20%*	*Between 15 and 20%*	*Between 8 and 15%*	*Between 0 and 8%*	*Stagnation/ Decline (from 1998)*
Multimedia-tuotteet					

5.2 ***Reasons for your assessment / Syitä valintaanne:***

5.3 ***Mainitkaa kolme esimerkkiä sellaisten laadukkaiden tietotuotteiden ja -palvelujen trendeistä, joilla mielestänne on merkittävä osuus markkinoilla vuoteen 2003 mennessä. Mitkä ovat syyt valintaanne?***

Ensimmäinen esimerkki ja valintanne syyt:

Toinen esimerkki ja valintanne syyt:

Kolmas esimerkki ja valintanne syyt:

6. Market Barriers.

Markkinoiden kehittymisen esteet Suomessa

6.1 ***Mitkä ovat mielestänne kolme tärkeintä seikkaa, jotka estävät sähköisten tietopalvelujen markkinoiden kehittymistä Suomessa? Mitkä ovat arviointinne syyt?***

Ensimmäinen esimerkki ja arviointinne syy:

Toinen esimerkki ja arviointinne syy:

Kolmas esimerkki ja arviointinne syy:

6.2 ***Mitä pitäisi mielestänne tehdä virallisen kansallisen informaatiopolitiikan ja tietoyhteiskuntapolitiikan ohella tällaisten esteiden vähentämiseksi tai poistamiseksi (esim. mitä tuottajien, valmistajien, konsulttien, alan ammattilaisten, informaatikkojen, käyttäjien ja käyttäjäyhdistysten pitäisi tehdä)?***

7. Information Policy.

Informaatiopolitiikka Suomessa ja EU:ssa

7.1 ***Mitä julkisen vallan (kansallinen informaatiopolitiikka, tietoyhteiskuntapolitiikka) pitäisi tehdä sähköisten tietopalvelujen markkinoiden edistämiseksi Suomessa? Miksi suosittelette juuri sellaisia toimenpiteitä?***

7.2 ***Mitä Euroopan komission pitäisi tehdä sähköisten tietopalvelujen markkinoiden kehittämiseksi EU:ssa? Miksi suosittelette juuri sellaisia toimenpiteitä?***

8. Other Trends
Muita trendejä

Tässä voitte kuvailla muita tärkeitä trendejä, jotka mielestänne vaikuttavat sähköisten tietopalvelujen markkinoiden kehitykseen vuoteen 2003 asti. Mitkä ovat syyt arviointiinne?

Kiitos yhteistyöstänne.

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