Annex to WP4 - D4.3.1

Overview of the National Contexts - NAS 10 Countries

by

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Table of contents

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List of tables

List of figures

Introduction

What SIBIS is about

Statistical Indicators Benchmarking the Information Society (SIBIS) is an Information Society Technology (IST) Programme project that has produced new methods and data that will contribute to the European effort to measure and benchmark the Information Society, and to monitor the effectiveness of policies aimed at supporting its development. As the Information Society extends to all aspects of social and economic life, indicators are needed to track not only the technological infrastructure development, but also the impacts on individuals, organisations, industries, and economies.

SIBIS has approached the task of developing and testing such indicators in a systematic manner. It started with a comprehensive assessment of the state-of-the-art in Information Society benchmarking, undertaking extensive reviews of National Statistic Offices across all member states. In addition to indicators which have been used for actual benchmarking purposes, SIBIS collected and analysed other indicators utilised in small-scale and non-representative studies as well as other ones that have been proposed but not yet tested or applied in practice.
From reviewing the corpus of indicator literature, a core set of "SIBIS" indicators were then developed, with the emphasis on those aspects of the Information Society that have been the focus of attention in the eEurope context. These indicators were tested and applied in benchmarking surveys in all 15 EU Member States , in the US, Switzerland and the EU accession countries (i.e. the Newly Associated States – NAS) Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

eEurope + 2003

At the European Ministerial Conference held in Warsaw on 11-12 May 2000, Central and Eastern European Countries recognised the strategic goal set by the EU 15 in the Lisbon summit held in March 2000: Europe to become " the most competitive and dynamic knowledge-based economy in the world". In order to achieve this objective, Candidate Countries agreed to embrace the challenge set by the EU-15 with eEurope and decided to launch an "eEurope-like Action Plan" as a compliment to the EU political commitments.
The eEurope+ Action Plan, presented by the Heads of State and Government of the Candidate Countries at the Göteborg European Summit on June 16 2001, mirrors the priority objectives and targets of eEurope but provides for actions which tackle specific situations. It sets out a roadmap to accelerate reforms and modernisation of the economies of the Candidate Countries, encourages capacity and institution building and aims at improving overall competitiveness.
To facilitate comparison and exchange of information amongst Candidate Countries and with the other EU15 countries, actions are clustered around the same three main objectives identified in eEurope: A cheaper, faster, secure Internet; Investing in people and skills; Stimulate the use of the Internet. It has also been agreed to use the same indicators selected by EU15 for eEurope in order to monitor and benchmark the progress of the Information Society.
However, when the eEurope initiative was launched in the EU, the telecommunication sector had been liberalised, the 1998 telecoms acquis was already transposed and implemented and nearly all households had telephone lines. As this is not the case in the NAS, the eEurope+ Action Plan includes an additional section "Accelerate the putting in place of the basic building blocks of the Information Society" addressing these three elements.
In June 2002, a progress report was issued by with the aim to assess the progress in the implementation of the eEurope+ Action Plan.

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SIBIS's contribution to the benchmarking exercise within eEurope+

The approach to benchmarking, which is being undertaken within the eEurope and eEurope+ initiatives, bears many similarities to the current approach taken by the SIBIS project. Through SIBIS, the indicators that have been developed to track telecommunications and access have a strong focus on the Internet and broadband.

This report directly contributes to the eEurope+ benchmarking exercise as it presents data corresponding to and/or complementing the indicators requested for benchmarking eEurope+. Its structure allows a comparison with the result from the EU15 benchmarking exercise, which was also carried out in SIBIS and presented in Deliverable 4.3.3 *eEurope 2005 Key Figures for Benchmarking EU 15.*

Structure of the report

The report is set out according to five broad areas: Internet indicators, modern online public services (comprising e-Government, e-Learning and e-Health services), e-Commerce, security & trust and broadband.
This report provides,

- a set of indicators measuring the various aspects of the Information Society in the NAS. For each area, the report also shows how SIBIS indicators interrelate with the indicators proposed in eEurope+ and in eEurope 2005
- a comparison of the relative position of the NAS in the various areas
- conclusions about the progress of the Information Society in the NAS Where relevant, a comparison with the results of eEurope+ Progress Report has been provided

http://www.europa.eu.int/information_society/topics/international/regulatory/eeuropeplus/index_en.htm)

- an overview of the various national contexts, as for implementation and progress of the Information Society (in Annex)

The Survey

The SIBIS General Population Survey, (GPS) was conducted in January 2003 in the 10 Newly Associated States, Bulgaria, Czech Republic, Estonia, Hungary, Lithuania Latvia, Poland, Romania, Slovenia and Slovakia, using personal aided personal interviews (PAPI). Throughout the study the set of these countries is called NAS or Newly Associated States. The survey was coordinated and executed by NFP AISA Czech Republic, Prague. The population for this study is all persons aged 15 years and older. The interviews were 10,379 - roughly 1000 per country.

In order to produce comparable results, the research has used uniform questionnaire and sampling methods. The interviews focused on:
- Availability, up-to-dateness, capacity, and reliability of info-communication infrastructure;
- Knowledge and attitudes (opinions, fears and doubts) related to ICT usage;
- Participation in and readiness to use the services of various ICT application fields such as e-Learning, e-Work, e-Commerce, e-Health, and e-Government.

For the selection of the target person common random keys were applied in all countries, i.e. the next birthday method and the Kish method, except for Bulgaria where quota was used. The database of the survey contains about 160 variables. In Hungary the inquiry was performed by

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Median Ltd. and the research tasks were performed by the Budapest University of Economic Sciences and Public Administration, Department of Sociology and Social Policy.

There were three main adjustments necessary in order to provide reliable data:
• Adjustment of unweighted sample structure to the official statistic
• Adjustment of weighted sample structure to the NAS-10 countries population.
• Transformation from household sample to person sample in Poland and Slovenia

The outcome of the SIBIS Project is a series of studies by country and by ICT application fields. In order to create a background to the analysis of survey results and to interpret the data correctly, researchers in all participating countries have studied the legal, political, institutional and business background of ICT diffusion. With this additional information the SIBIS database is suitable to make a comparison among Central European countries on the efficiency of their ICT related policies. This application possibility of the survey results is important because it corresponds to the evaluation aims of the e-Europe programme of the EU and its national counterparts in the accessing countries.

Acknowledgments

For the preparation of the overview presented in Annex, each NAS partner has taken up the task to implement the needed research and to develop and elaborate the reporting on their single National Context. Databank Consulting has coordinated and supervised the work

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1.   Bulgaria

1.1.   Political awareness to information society issues and eEurope in Bulgaria

By 2002, the first phase of transition process in Bulgaria can be considered as over; with the most important political and economic institutions re-established. Indeed, in its 2002 Opinion the Commission concluded that Bulgaria is a functioning market economy[1]. The main challenges now are to cope with the competitive pressure and market forces within European Union in the medium term. Innovation has to play a major role in meeting these challenges. This premise is supported by the fact that Bulgarian economy is going into its sixth year of stable conditions, having established a satisfactory track record of macroeconomic performance.

Despite being the leading in the past and still keeping high level in education of specialists in Information and Communication Technologies (ICT), the position of Bulgaria generally moved bellow of EU-15 and NAS –10 average of IST benchmark. There are too many reasons. The major among them are defined by the lack of demand (and connected investments), specific to previous periods, and leading to high levels of brain drain of ICT specialists.

To meet the challenges of Information Society development and European common market requirements the Government has identified the **development of communications and high-technologies** as one of the pillars for sustainable economic growth of the country.

The programme of the government is built on the following goals:

- **Enhanced competitiveness and innovation** will result from the wide implementation of cutting-edge technologies, particularly in the areas of IT and telecommunications, from ensuring high standards in education, and from modernizing the economy and constructing a modern infrastructure;
- **ICT investments** are viewed as a factor stimulating investments in other fields;
- ICT is becoming a major engine of **economic growth**.

The government has set the following strategic objectives:

- Promote investments in the ICT sector and the development of R&D networks;
- Create a competitive, export-oriented software industry;
- Capitalize on Bulgarian strong educational traditions;
- Encourage the small and medium enterprises in the ICT sector;
- Encourage young graduates to start their own businesses in Bulgaria.

By setting up research and development centres in Bulgaria, capable of working from a distance on large corporate projects around the globe, the government intends to keep young people in the country, offer them good professional opportunities and a respectable reward for their labour. As a sign of the importance of ICT development, the individual ministries have committed themselves to implement own strategy for the promotion of this sector. To achieve better concordance in the actions of the individual ministries an agency is established, which assumes the important task of coordinating national efforts.

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[1] See: Report of the European Commission on the progress towards accession by each of candidate countries, Brussels, 09.10.2002, SEC/2002/1400-1412

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1.2.   The national context for the implementation of eEurope in Bulgaria

Looking at the update and diffusion of ICT in Bulgaria, the key funding are:

- The level of IT penetration in Bulgarians' everyday life can be evaluated as relatively low. Computer access is concentrated in the bigger cities and mainly in Sofia.

- Bulgarian Internet users typically access the virtual space for three main purposes: First, as a source of information. Second, for entertainment purposes. Third, for business and education purposes.

Financial transactions operations and online shopping are still used rarely. The main reasons for this are the reliability of the connection, the low level of awareness of these technologies and the low level of trust in electronic banking (only three of the commercial banks – United Bulgarian Bank, First Investment Bank, and Union Bank – provide e-services).

Potential to uptake ICT and initiatives for its improvement
A large number of scientists in the business sector in Bulgaria are skilled in electronics and communications, as well as mechanical engineering. It means, that the human resources for ICT development took a large share of Qualified Scientist and Engineers (QSEs). The measures of the Ministry of education and science to improve human resources in IT sector include:

- National strategy for education in ICT. (1998);
- Programme (1999) in order to improve the level of education in ICT;
- Order of 30.08.1999 to include informatics and IT as two obligatory for all pupils. The education started on 1st of Sept., 1999. In May, 2000 all requirements to the teaching programmes have been published.

One of the main factors affecting supply of resources for technological development in the country is the extremely **high interest of young people in education in ICT**. The reasons are: a) Bulgarian traditions of favouring education; b) the fast developing IT markets in EU and USA; c) and that the Bulgarian experts have combination of skills in hardware and software.

Young people, who apply to study at the Technical University - Sofia prefer on the first place: Computer systems and technologies –3836 of applicants; Communication equipment and technologies –1784 of applicants. There are between 12 and 530 applications for the remaining 32 specialties. The minimum scores from the exams for the first two specialties are 19.85 and 19.60 (where the maximum scores are 21).

Foreign demand for Bulgarian skilled human resources in the ICT sector has led to brain drain from the country. For the last 10 years period 300,000 IT specialists have left the country, according to the National Statistical Institute. The reasons for the **brain drain** from the Bulgarian ICT industry: The low level of market demand in the country; The higher level of demand in EU – 0.8 million. (1.7 million. in 2003), and in the US – 1.6 million; Weak practical knowledge of young people to develop their own business in the country; Weak collaboration between universities, research institutes, and business.

Education in and usage of ICT, as well as development of the National network for education and science are among main tasks of the National strategy for information society development and the

initiative eEurope+. The plan for 2005 intends every pupil in secondary school to posses "electronic literacy". 100% of schools, universities and institutes to have good access to Internet.

During the period 2002-2003 for both - educational programme and network development programme - a budget of between €25 and €45 million (minimum and optimum) is required.

The period 2003 - 2005 requires between €29 million (minimum) and €44 million (optimum - including replacement of depreciated computers in the schools).

Bulgaria has a good level of supply of skilled personnel in ICT. But the demand in the sector is not sufficient which leads to a brain drain phenomena.

Mainly the state is responsible for meeting the schools demand for new ICT implementation. But there is a tendency the state funding for National network for education and science to decrease.

There are a lot of initiatives in favour of uptake of ICT in enterprises in order to extend and speed the diffusion and pace of technology, information and knowledge. But they are not enough to be effectively implemented. Among the main reasons are the lack of financial resources and limited demand.

Bulgaria has to develop its potential as a regional (SEE) education and training centre in the area of for ICT, using both: local and foreign sources.

1.3.   Commitment to introduce e-services

Centre of Information society promotion in Bulgaria
ISPO (Information Society Promotion Office) was an initiative that started in 1994 with Action Plan of the European Commission on the way to Europe to the Information Society. **http://europa.eu.int/information_society/index_en.htm.** The Information Society Promotion Office in Bulgaria **www.ispo.bg** was created by the initiative of the

Ministry of Transportation and Communications www.mtc.government.bg,

Foundation "Applicable Researches and Communications" www.arc.online.bg and
the executive agency "National Communication System" with **basic tasks**:

- to promote the importance of the Information Society to Bulgaria;

- to introduce to wider circles of the public the influence of the new information technologies upon the social-economic development of the country;

- to support the creation of public and personal adjustment for participation in the transition to Information Society.

The Center was created according to the Strategy on Information Society Development of the Republic of Bulgaria (http://www.mtc.government.bg/en/cpt/infosoc/strat_new.htm) and the decisions of the Third Forum for Information Services connected with the Information Society between the European Union and the countries – candidates for membership from Central and Eastern Europe. The Centre performs specialized information services related to the Information Society as it works actively with citizens, academic, scientific, and economic organizations and with the state administration. It is paying special attention to the schools, the bodies of the local authority, small and medium-sized enterprises (SMEs).

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At the web page of the Centre you can find information about the Information Society at the following divisions:

- News – there are presented news of the day related to the Information Society in Bulgaria and EU

- Politics –information upon political decisions and their effects

- Programmes – comprises information for current programmes and projects

- Documents – strategic documents

- Topics – analyses upon current topics.

Econ.bg recommends to you the rubric "Topics" at the site where you can find analyses related to Internet users in Bulgaria (http://www.ispo.bg/analizi2.htm) and the newly adopted Law for the Electronic Document and Electronic Signature (http://www.ispo.bg/zakon.htm).

Bank e-Services and e-Products in Bulgaria

After couple of years of stabilization in the financial sector in Bulgaria, now Bulgarian banks are focusing their activities on e-Business. The rapid change in the global financial markets is urging the banks, operating in Bulgaria, to promote new solutions in order to keep and enlarge their market share on the one hand, and on the other hand – to satisfy their customers' increasing needs.

This concept was confirmed, as two systems for e-transactions through the Internet were implemented in Bulgaria with banks being the main initiators. The development of www.ePay.bg и www.Bgpay.bg shows that progress difficult and slow, although progress is speeding up.
In connection to the new e-products and e-services, offered by the banks in Bulgaria. Their proper use will certainly bring additional utility to your activities as follows.

First Investment Bank - http://www.fibank.bg/bg/index.html
- **ePayVoice -** on-line payment of bills and charges
  https://www.datamax.bg/ec/39e94b63de89a6ef093f7598ab5ea72f/main.cgi
- **on-line lending of consumer credit** http://www.fibank.bg/bg/html/user_credit_docs.html
- **on-line payment of goods and services**
  http://www.datamax.bg/redirect.cgi?lang=bg&body=registered_merchants

United Bulgarian Bank - http://www.ubb.bg/
- **Internet Banking –** Possibility of using the bank services 24 hours per day through Internet - http://www.ubb.bg/bg/bnk_invest/index.html
- **GSM/WAP banking –** using the bank services and receiving bank information through GSM mobile phone - http://www.ubb.bg/bg/bnk_invest/index.html
- **Phone banking –** possibility to manage bank account through a telephone - http://www.ubb.bg/bg/bnk_invest/index.html
- **PC banking** – This is a bank system, based on a PC, aimed at accelerating daily bank transactions without leaving your office - http://www.ubb.bg/bg/bnk_invest/index.html

Economic and Investment Bank - http://www.eibank.bg/
- **Remote banking –** possibility to make daily bank transactions without leaving office - http://www.eibank.bg/service/otbank.shtml

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- **Phone banking –** possibility for management of bank accounts through telephone, fax, telex, e-mail - http://www.eibank.bg/service/telbank.shtml
- **Participates in ePay.bg system** – the EIBank accounts and debit card holders can make payments through ePay.bg system - www.epay.bg

ING Bank - **http://www.ing.bg**
- **E-banking** – possibility for management of your bank accounts - http://www.ing.bg/bg/index.asp?cath=1006
- **Participates in ePay.bg system** – the ING bank accounts and debit card holders can make payments through ePay.bg system - www.epay.bg

Bulbank - **http://www.bulbank.bg**
- **Phone banking - –** possibility to manage bank account through a telephone - http://www.bulbank.bg/Info/frame-info.htm
- **PC banking** – This is a bank system, based on a PC, aimed at accelerating daily bank transactions without leaving office.

Eurobank - http://www.eurobank.bg
- **PC banking** – This is a bank system, based on a PC, aimed at accelerating your daily bank transactions without leaving office.

NeftInvest Bank - http://www.nib.bg
- **Participates in ePay.bg system** – the NeftInvest Bank accounts and debit card holders can make payments through ePay.bg system - www.epay.bg
- **PC banking** – This is a bank system, based on a PC, aimed at accelerating your daily bank transactions without leaving office.

Raiffeisenbank - http://www.raiffeisen.bg
- **PC banking** – This is a bank system, based on a PC, aimed at accelerating your daily bank transactions without leaving office.
- **Participates in ePay.bg system** – the Raiffeisenbank accounts and debit card holders can make payments through ePay.bg system - www.epay.bg

Rosexim Bank - **http://www.roseximbank.bg**
- **Home banking** – using the bank services through hoem PC - http://www.roseximbank.bg/cgi-bin/rosexim.cgi?2310
- **Participates in ePay.bg system** – the Raiffeisenbank accounts and debit card holders can make payments through ePay.bg system - www.epay.bg

Biochim - http://www.biochim.com
- **PC banking** – This is a bank system, based on a PC, aimed at accelerating your daily bank transactions without leaving office.- http://www.biochim.com/BULGARIAN/bulgarian.htm
- **Participates in ePay.bg system** – the Biochim accounts and debit card holders can make payments through ePay.bg system - www.epay.bg

Municipal Bank
- **Participates in ePay.bg system** – the Municipal Bank accounts and debit card holders can make payments through ePay.bg system - www.epay.bg

Central Cooperative Bank

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- **Participates in ePay.bg system** – the Central Cooperative Bank accounts and debit card holders can make payments through ePay.bg system - www.epay.bg

Bulgaria Invest Bank
- **Participates in ePay.bg system** – the Bulgaria Invest Bank accounts and debit card holders can make payments through ePay.bg system - www.epay.bg

Tokuda Credit Express Bank
- **Participates in ePay.bg system** – the Tokuda Credit Express Bank accounts and debit card holders can make payments through ePay.bg system - www.epay.bg.

1.4. Main policies in support of the development of ICT networks and high-speed infrastructure in Bulgaria

The adopted **Strategy for Information Society development in the Republic of Bulgaria** defines the national priorities for transition to IS at legislative, technological, economical and social levels and outlines basic related activities.
The target is to develop an Information Society that would be more democratic, more accountable and more inclusive. The information and communication technologies have paved the way for the rise of the knowledge-based economy that has become the engine of the economic growth in the developing market economies. The emerging knowledge-based economy in the transition or former transition economies could be a driving force for rapid economic developments that would speed up the catch-up process. A major task for the Governments, business and NGOs is emerging to prevent a digital divide. Commitments based on shared responsibilities to work in partnership in this area are of key importance.

Nevertheless, the key objective is not commitment but action that would place mainstream ICT into work aimed at: reducing development disparities among regional economies, promoting prosperity by giving new opportunities to young generation and women and underdeveloped –often rural – areas.

It is primarily a responsibility of Governments to develop e-strategies and to implement them. However, the preparation and far more efficient implementation of the national e-strategies require a close cooperation of all stakeholders – government, private sector and civil society. As the importance of civil society in developing IS is so far less understood, in Bulgaria it is a must to underline their role in ensuring that some fundamental principles are put into practice like securing access to information and knowledge, promoting diversity and cultural identity, building IS at the community level, developing human capacity through education, training and skills development, is indispensable.

Some of the initiatives aimed at improving the level of diffusion and uptake of ICTs in the economy are summarised below.

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Tab. 1-1 Initiatives taken in favour of the uptake of ICT in Bulgaria

Organisations responsible	Objectives	Funding
Ministry of education and science	Improving education in IT National strategy for education in ICT. (1998). Programme (1999) in order to improve the level of education in ICT. Order of 30.08.1999 to include informatics and IT as two obligatory for all pupils. The education started on 1st of Sept., 1999. In May, 2000 all requirements to the teaching programmes have been published.	EC, PHARE, national sources.
Committee for posts and communications (1999)	National strategy for Information society development. Objectives: open IC infrastructure; implementation of new ICT in management, economy, education, culture and healthcare, national security and ecology; development of ICT sector as a leading sector in Bulgarian economy; improving quality of ICT human resources.	Government and other sources.
Ministry for economy, 1999	National strategy for hi-tech development in Bulgaria. Tasks: to develop dynamic hi-tech sector, which will improve the competitiveness of Bulgarian economy.	Government, private business, FDI, international programmes.
Ministry of economy, 1999	Project for a Law for hi-tech parks and hi-tech activities.	Government, private business, FDI, international programmes.
Universities, Industry, state institutions, NGO, 2001	Project: Development of contemporary methods, instruments and services for human resource development on the base of ICT in BG and SEE. Tasks: training, technology transfer, infrastructure development, development and marketing of services for e-Learning.	European Commission, Universities, private sector, Bulgarian government, Stability pact, World bank.
Faculty for communication equipment and technologies at the Technical university in Sofia, 2002	Investing in education of the future personnel Funding of R&D projects.	Bulgarian Telecommunication company, ERICSON, Seimens, Mobiltel, Electronic progress, Union for electronics, electrotechnics and communications, Kontrax, Teko.

Source: www.government.bg and consulted experts

The fifth initiative is aimed at:

- Establishing a critical mass of experts, able to apply modern e-Learning technologies in education in CEE and SEE;
- Establishing a virtual centre for cooperation in ICT and business education between Bulgarian universities and firms in the form of "MEGAUNIVERSITY";
- Establishing communication platform for e-Learning, incl. Interactive TV for the SEE region;
- Development of a national learning portal for educational and training programmes, products and services and for connections with SEE;
- Development of Bulgarian industry for e-Learning as a strategic direction of the new economy development.

The sixth initiative is aimed at involvement of firms in decisions for ICT research and education.

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2.   Czech Republic

2.1.   Political awareness to information society issues and eEurope in the Czech Republic

The government first started to tackle the issue of the Information Society in 1998. Since then, this issue has been continuously addressed by successive Czech governments. They have attempted to create appropriate legislative and structural conditions. The first government document systematically dealing with information society issues was the State Information Policy produced in May 1999, although this field had already been partially touched on in a strategic document entitled "The Main Principles of Telecommunication Policy" (1994, new version in 1999).

 "State Information Policy – The Way to an Information–Oriented Society" states that the Government intends to help the Czech population to achieve computer literacy. The e-Government system will provide public information services through electronic means so that all citizens have access to Government information. These documents contained general development principles as well as specific goals to be met in an ongoing fashion by the state institutions of the Czech Republic. The concrete expression of the State Information Policy is called the Action Plan for Implementation of the State Information Policy (the Action Plan adopted in March 2002 and effective till the end of 2003 is currently in force).

The last institutional step of the Czech state concerning the information society and the eEurope+ initiative to date was the establishment of a separate Ministry of Information as of January 2003. However, from a general point of view, private initiatives and a spontaneous development on the level of state administrative institutions and local government seem to play an even more positive role than the state centralised support of the information society. Hence the Czech Republic belongs to the leading countries in the information and communication technologies (ICT) sector among the Central and East European EU candidate countries and the development of these technologies, (personal computers, Internet, mobile phones), as well as the deployment of the technology, has been rapid. The Czech Republic spends more on information and communication technologies (ICT) as a percentage of GDP than the average EU country. There are approx. 5,000 IT-graduates every year, with about 10% of the population being highly computer literate.

Consequently, the state central policy may appear to have stimulated the development of this sector but in reality has barely managed to keep abreast in terms of legislation with the actual state of affairs. This has resulted, for example, in a delay (from the beginning of 90s) in the liberalisation of the telecommunications sector and diverse levels of implementation of hardware and software solutions in the public sector institutions, which has led to a mutual non-compatibility and difficulties in interconnection.

The main objective of the implementation of the State Information Policy in the legislative area is to achieve harmonization with EU law and to set up the legislative conditions for a more effective and broader application and utilization of modern ICT.

These are the main acts concerning the information society:
    Act 101/1999 Coll. About Personal Data Protection
    Act 106/1999 Coll. Access to the Public Information
    Act 151/2000 Coll. On Telecommunications
    Act 227/2000 Coll. Electronic Signature
    Act 365/2000 Coll. About Public Administration Information System

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An act on the protection of personal data (101/1999) came into effect in June 2000. The Office for Personal Data Protection (based on this act) was founded as an independent body in the year 2000.

The Czech Act on Electronic Signatures (227/2000) came into effect in October 2000. The Act implements to a great extent the EU directive (1999/93), which was implemented by all EU members no later than July 2001. Czech legislation regards electronic signatures as the legal equivalent of written signatures. The acceptance of e-signatures (based on qualified certificates) allows communication with Czech public authorities via the Internet.

Act. 365/2000 Coll. About Public Administration Information System is a basic framework law for the development of an e-Governmental system of registers (back office integration principles), on-line services and other components of e-Governmental applications at all levels of public administration.

There is lively public discussion on information society issues in the Czech Republic; there exist interest groups supported by the government (e.g. the government's official expert consultative body - the Czech Forum for the Information Society, www.cfis.cz) as well as private groups (e. g. the association of fifty leading companies in the information technologies sector - the Association for the Information Society, www.spis.cz or BMI, a civil association, organising the promotion of the project "March – Internet Month"; see www.brezen.cz). There also exists Internet periodicals dealing with different aspects of the information society, for example e-Government (www.egovernement.cz), Lupa (www.lupa.cz, commenting on developments in Czech Internet) or E-komerce (www.e-komerce.cz, providing information on e-Business). The main activities of this type of body are in the promotion of the information society, explanation, etc.

2.2. The national context for the implementation of eEurope in the Czech Republic

The target of eEurope+ has been incorporated in the Czech Republic into the updated Action Plan of the State Information Policy. Currently (since January 1, 2003), the newly established Ministry of Information (www.micr.cz) is acting as the main co-ordinator of events leading towards the information society. The Ministry has integrated the independent structures of the Office for Public Information Systems and the communication division of the Ministry of Transport and Communications and taken over the authorisation of the electronic signature issues from the Office for Personal Data Protection. The Minister of Information has defined the mission of the new Ministry as the following:

"The objective of the Ministry of Information is to create such conditions in the Czech Republic that our country becomes the central European leader in the information and communication technologies sector. We struggle primarily in three areas. We want to establish a functional e-Government which will enable citizens quickly and easily to communicate with the state and will lead to savings in the state budget. We will create conditions for equal competition in the telecommunications market and will help to develop electronic trade. Our last but not least task is to help the highest number of people have a wide access and knowledge of communication technologies. In essence: the objective of the Ministry is to enable the Czech Republic to successfully stand global world competition in the 21st century."

Other tasks of the Ministry include preparation of strategic concepts, drafts of ICT laws and coordination of the state's bodies in the field of ICT.

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In addition to the Ministry of Information, each government and self-governing office is responsible for the implementation of ICT within its operations. In particular, the Ministry of Education and Youth (www.msmt.cz), the Ministry of Labour and Social Affairs (www.mpsv.cz), Ministry of Interior (www.mvcr.cz and the Czech Statistical Office (www.czso.cz) play an important role. The Interior Ministry (www.mvcr.cz), which is responsible for many public administration information systems and services, has one of the key functions in the implementation of the plans of e-Government. The Ministry of Interior coordinates development of public information systems on the regional and municipal level, too.

2.3. Commitment to introduce e-services

The official state documents (State Information Policy, Action Plan for Implementation of the State Information Policy and some other strategic documents of the ministries) have incorporated and elaborated individual tasks of the eEurope+ initiative.

e-Healthcare

The Ministry of Healthcare manages a project called Healthcare on-line. It concerns the digitalisation of healthcare registers, healthcare documentation and telemedicine. According to the SIP Action Plan, CZK 310 million (approx. 10 million Euro) are projected for this purpose for the period 2001 – 2005, especially for basic central healthcare registry development (for example, transplantation registers).

Government information policy also supports the development of information services for disabled citizens (for example www.braillnet.cz).

E-Health is an area for public private initiatives. One of the most important is the project IZIP (www.izip.cz) which is "Internet access to patient health information for all participants of health care". Many projects are in the area of telemedicine – Intervention teleradiology, teleneurosurgery, telepathology etc.

In addition to State activities, there are private commercial initiatives, for example the Internet page www.doktorka.cz run by the ARBOmedia advertising agency and other projects.

e-Education
The Czech Republic is currently implementing the first phase of information educational policy. The objective of the project is to ensure a high quality ICT literacy for primary and secondary school students with the support of improved infrastructure and software. In total, 6,200 schools should be put on-line. In March 2003 the remaining 450 schools were connected to the Internet. At the moment there are 9.5 computers and 5.2 computers connected to the Internet per 100 scholars and students in the Czech Republic.

Besides its own department of education, the state invests in the information infrastructure of libraries and the information literacy of state administrative employees (on the ECDL level) and the unemployed. Public courses in computer skills for beginners sponsored by the state and the Intel Corporation opened at the beginning of 2003. The overall objective is to achieve at least 50 % computer literacy amongst the Czech population within the next four years. The informatization of public libraries has been quite successful. More than CZK 250 million were given for informatization and acquisition of Internet access between the years 2000 and 2002. There is in principle 100% informatization of public libraries in bigger towns. For almost 75% of Czech population the Internet is accessible from public libraries.

DATABANK CONSULTING

The Ministry of Education and Youth has invested the highest amount of money in the introduction of the Internet in schools and an increase in the speed of their connection. The total budget of an extensive project Internet into Schools and related events, projected to last for five years (2001 – 2005), amounts to approx. CZK 4.2 billion (around Euro 135 million) and is considered a flagship for the whole movement of the Czech Republic towards the information society. The project has made it possible for Czech schools of all levels to be equipped with information and communication technologies and moreover, the media response has helped raise Czech public awareness concerning information society issues.

e-Government

In the last few years, the Czech Republic has recorded a significant development in e-Government, primarily in the field of an on-line availability of information from national and local government institutions. The government initiative towards eEurope+ accompanied with investments in many sectors, has contributed to the development, as well as the Act106/99 Coll. on free access to information, requiring state bodies to provide any data which is not confidential or inaccessible by law. In our view, the law on free access to information has substantially modified the atmosphere in the country and has encouraged public institutions to more actively publish information within their terms of reference. Besides extensive databases (e.g. the Commercial Register, the list of addresses in the CR and others), a whole range of documents and information from almost all major state institutions can be found on the Internet, although the extent and quality of Internet presentations differs widely.

The State Information Policy includes as a basic principle the implementation of e-Government processes. E-Government calls for a fundamental transformation in Government functioning. This transformation requires a proper direction from the centre to drive the changes in the service culture of the civil service, to break down bureaucracies and barriers between departmental boundaries, to manage many complex and inter-related IT implementation and business process re-engineering issues (ongoing public administration reform).

One of the main projects in the area of central register was a new land registry information system which was set up for the public as a totally new development in 2002. It is an example of good progress in the area of GIS (geographic information system) for public administration (www.cuzak.cz, www.imip.cz). It consists in the central register and 112 local offices, which are on-line, and ready to provide some on-line services related to land registry for the public and for public bodies. Another project is the development of a Regional Information Administration system for regional and municipal public administration. There are some important public private activities, creating portals for municipalities (www.obce.cz).
The Ministry of Finance is responsible for several important information systems – the system for taxation, for customs etc. A good example of a modern information system is found in the area of social affairs.

The State Information Policy expects that an important role in access to the e-Governmental services will be played by Ceska Posta,a,s (Czech Post), which is in the process of modernising its services – registered post services, hybrid post, Internet kiosks at post offices round the country, etc.

One of the biggest projects in the area of e-Government is the communication service for the public administration information system, which was signed in 2001. The main goals of this contract between state and CESKY TELECOM, a.s. are voice and data communication services (for example VPN, government intranet etc.) for public administration on new level.

DATABANK CONSULTING

On the other hand – despite the adoption of the law on electronic signatures and other state initiatives in this area – the electronic contact of citizens with state bodies has not become commonplace. Various applications, tax statements, etc. are still being dealt with in paper form. Therefore, the newly established Ministry of Information has declared its aim to make at least one quarter of the administrative agenda fully electronic within next four years. The electronic VAT statement, which is to be accessible to the public in March 2003, is its pilot project. Since February 2002, a pilot project has been running for the establishment of information kiosks equipped with a monitor, printer, scanner and telephone which should soon enable communication with state institutions on-line.

Activities to stimulate the diffusion of e-Commerce in the Czech Republic

To date, the development of e-Commerce in the Czech Republic has mainly been in the sphere of private initiatives by business entities. Most major Czech enterprises are currently presented on the Internet and they assign the Internet a certain role in marketing and/or business strategies. Several retail companies have already been selling exclusively on the Internet for a few years, e.g. Vltava bookstore (www.vltava.cz, since 1996) or the Internet supermarket Multimarket (www.multimarket.cz, since 2001). Entities operating in the Internet market may join the Association for Electronic Commerce (www.apek.cz) which promotes their common interests and strives to increase the image and credibility of this type of business.

The state also tries to transfer contracting out government orders to the Internet in order to achieve cheaper and more transparent tenders. Since September 2002, public tenders for the purchase of information and communication technologies smaller than CZK 2 million have to be traded through Internet public administration markets (according to the Resolution of the government of the CR no. 683 from June 26, 2002). Currently (January 2003), there are three markets operating: Centrade (www.centrade.cz), GeM (gem.b2bcentrum.cz/in_trziste.jsp), and ABClink (www.abclink.cz). Their development is difficult to assess, as the starting period of the "trial operation" has not yet come to an end.

The Czech Government issued a Green Paper on Electronic Commerce in January 2002, a strategy focusing on the closer co-operation of public administration with private sector. The paper was followed (at the end of 2002) by a White Paper on Electronic Commerce, identifying remaining obstacles to the smooth development of e-Commerce and proposing solutions.

The elimination of legislative obstacles in the development of e-Business and creation of new norms corresponds to the situation of companies trading on the Internet. The Act. no. 227/2000 on electronic signatures is considered to be the first key law along these lines. However, the real use of the electronic signature has not been massively expanded even two years after its inception; most probably due to missing opportunities for its meaningful use in the sphere of e-Government and e-Commerce.

e-Inclusion

In the Czech society one can identify several main factors that influence e-Inclusion. These factors are income, education, age and disability. At the beginning of the development of the information society the group of people using e-technologies was small, and it appeared that whilst IT knowledge was an advantage, it did not divide society (due to poor ICT infrastructure). Nowadays it is not possible to talk about the computer-literate group as a minority, on the contrary, for certain groups computer literacy and inclusion of IT into their career is becoming the standard, however the side-effect of this is that people who do not have these skills are being disadvantaged or even excluded.

DATABANK CONSULTING

Early on in terms of informatization the school education system did not fulfil its role. There were not enough qualified teachers. Children were studying IT in hobby groups and self-education. The key role in that process was played by the cultural, social and educational level of the family. At the same time we can speak about a generation inversion. Children were very often better at IT and taught their parents.

Disabled people are in danger of e-exclusion. Great attention is paid to the creation of possibilities for blind citizens. There is a project Blind Friendly Web (www.blindfriendly.cz). The target of this project is the creation of web pages for blind people. A number of governmental web pages have already obtained a certificate of blind friendliness.

The theme "disabled and IT" is systematically followed by **BMI** - a civil association and **AISO** – the Association of information systems for people with special needs. The common project of BMI and AISO is the creation of the portal www.helpnet.cz. This portal gathers all kinds of information for disabled. Other interesting projects are: a portal for parents of children with disability www.alfabet.cz, www.dobromysl.cz dealing with mental illness or the counselling portal www.Internetporadna.cz. Most of the project is financed from several different sources.

Research policies

Science and research are financed insufficiently in the Czech Republic. Already for several years the Czech government has not been able to fulfil its state budget plan for investment in science. Measuring the support of science by the standard indicator used by the EU or the OECD (rate of GDP), the support grew only until the year 2001. In that year the rate (0,6% of GDP) was the highest in the whole existence of the Czech Republic. The rate of GDP declined slightly in the year 2001 and noticeably in the year 2002. This was caused by the change in policy of the Czech government. The Czech government and its separate departments started to prefer short-time processes with immediate effect to long-term activities including research. The national research and development policy of the Czech Republic from the year 2000 was based on the commitment by the Czech government to achieve:

- 0,6 % of GDP for Science and research, in reality 0,594% was achieved in the year 2000

- 0,65 % of GDP for Science and research, in reality 0,59% was achieved in the year 2001

- 0,7 % of GDP for Science and research, in reality according to the approved budget 0,544% was achieved in the year 2002

The fact that the approved expenses for science and research were not granted led to criticism by the European Commission. Insufficient funding meant that some objectives of the national research and development policy could not be realised.

The financial situation in research means that the research community is not being satisfactorily renewed (we can even call it a brain drain). Some graduates who would like to simply cannot afford to work in State-run research. IT researchers migrate from academia to the private sector due to unsatisfactory salaries, sometimes IT specialists migrate even from the country. So far the migration out of the country has not been dramatic; although some IT specialists have taken advantage of a recent German "IT green card" programme.

One factor which has helped in the promotion of Czech science is participation in many EU-funded research projects. Czech institutions are forced to seek new partners and build research networks.

A DATABANK CONSULTING

2.4. Main policies in support of the development of ICT networks and high-speed infrastructure in the Czech Republic

The strategic document of the state which is still effective and related to this sector is called the National Telecommunications Policy and dates from 1999. It is the second document of the same name. The main declared objective is "the satisfaction of the needs of the Czech economy, of the requirements of natural and legal persons and state interests for the assurance of reliable and widely accessible telecommunication services, of a high quality, for optimum conditions to a degree corresponding to the developed countries of the European Union and the world. This has the aim of involving the Czech Republic in the global information society in the 21st century."

The Czech Telecommunication Office is the independent regulatory authority for telecommunications. This Office performs regulatory functions and common administrative activities associated with the implementation of Acts in the area of electronic communication. The Czech Telecommunication Office was transformed into an independent regulator in July 2000. A new Telecommunications Act (151/2000) provides the legislative background for opening up the telecommunications market to competition by January 2001 and includes the European Union legislation, though with some exceptions. The Act required the incumbent operator to offer call-by-call carrier selection by mid-2002, and carrier pre-selection from the end of 2002. Unbundling came into force during 2002.

Commitments for the implementation of the new EU Regulatory Package for electronic communications services are expected over the next few months of 2003. However, the intention to *"finalise the liberalisation of the telecommunications market … and … to create conditions for the establishment of a competitive environment"* (the National Telecommunications Policy, 1999) has not been fully accomplished. In reality, the monopoly of CESKY TELECOM, a.s. (www.telecom.cz) still persists in the area of fixed connections. Conditions for the creation of competition in this field were imperfectly elaborated and their planned implementation was delayed, so that the services of alternative telephone operators are still not widely used.

High-speed connection for individuals is not generally accessible at acceptable prices. On the other hand, the mobile phone market where three operators compete and local Internet providers offer their services to commercial institutions, has recorded a high development in the last ten years (one reason is the fact that this sector was not excessively regulated by the state and the market has been liberalised since its inception). This competition, together with lobbying by important interest groups (e. g. Internet users), has had an effect on the improvement of services from CESKY TELECOM a.s..

The current situation in the Czech Republic is the following:

- There are almost 4 million fixed lines in the country with 10 million inhabitants: demand is saturated. The telephone network is completely digitised.

- Euro ISDN connection is easily accessible, but for relatively high prices.

- Cable television is available mainly within big cities.

- The first public ADSL service has been available since March 2003.

DATABANK CONSULTING

- The Czech Republic has already 2.5 Gbps connections to the GEANT network and is therefore close to the EU on this front.

- CESNET (Czech National Research and Education Network), established in 1996 by all universities of the Czech Republic and the Czech Academy of Sciences, has recently upgraded the CESNET2 connection to the Internet from 155 Mbs to 622 Mbs. CESNET's main goals are the operation and development of the Czech NREN, research and development of advanced network technologies, applications and increased public awareness about advanced networking matters.

2.4.1.   Bibliography

1) Statni informacni politika – cesta k informacni spolecnosti
    (State Information   Policy – The Way to the Information Society), 1999.
    Source: Government of the Czech Republic,
    www.vlada.cz/1250/vrk/rady/sip/dokumenty/sipcesta/sip.il2.htm

2) Akcni plan realizace statni informacni politiky
    (Action Plan for Implementation of the State Information Policy), 2002.
    Source: Ministry of Information, www.uvis.cz/?idm=14&lng=cz&iddoc=44&idc=125

3) Navrh zakona, kterym se meni zakon c. 151/2000 Sb. o telekomunikacích a o   zmene dalsich
    zakonu, ve zneni pozdejsich predpisu , a zakon c. 29/2000 Sb., o postovnich sluzbach a o
    zmene nekterých zakonu (zakon o postovnich sluzbach)
    (Bill of the change of the law on telecommunications and law on post services), 2003.
    Source: Ministry of Information, www.micr.cz/upload_file/20030107144652_tele_zakon.doc

4) Narodni telekomunikacni politika Ceske republiky
    (National Telecommunications Policy of the Czech Republic), 1999.
    Source: Ministry of Transport,
    www.mdcr.cz/text/archiv/ntp_telo_260499.html

5) Hodnoceni plneni ukolu specifikovanych v Narodni telekomunikacni politice   Ceske republiky
    (Evaluation of the Implementation of the Tasks Specified in the National Telecommunications
    Policy of the Czech Republic), 2001.
    Source: Ministry of Transport,
    www.mdcr.cz/text/archiv2001/ntp010301.rtf

6) Draft Provisions for Further Enhancement of Competition in the   Telecommunication market of
    the Czech Republic, 2001.
    Source: Ministry of Transport,
    www.mdcr.cz/text/zpravy2002/draft280102.doc

7) Narodni programme rozvoje vzdelavani v Ceske republice – Bila kniha
    (National Programme of the Development of the Education in the Czech Republic   – The
    White Book), 2001.
    Source: Ministry of Education, Youth and Sports,
    www.msmt.cz/defaultus.asp

DATABANK CONSULTING

8) Narodni plan zamestnanosti Ceske republiky
    (National Employment Plan of the Czech Republic), 1999.
    Source: Ministry of Labour and Social Affairs,
    www.mpsv.cz/scripts/clanek.asp?lg=1&id=945

9) Akcni plan zamestnanosti na rok 2002
    (Action Plan Employment for 2002), 2001.
    Source: Ministry of Labour and Social Affairs,
    www.mpsv.cz/scripts/clanek.asp?lg=1&id=2545

DATABANK CONSULTING

3. Estonia

3.1. Political awareness to information society issues and eEurope in Estonia

The first national information technology development programme was prepared in 1994 - **The Estonian Way to the Information Society.** Slightly later was the **Principles of Estonian Information Policy**[2], a source document on IS development approved by Government in 1998. The government information policy takes into account the goals set up in regulating different spheres of social life and introduces opportunities for presenting innovative solution.

Information Policy Action Plan[3] is the basis for all Government agencies to make specific proposals to the Government, proposals with schedules, sources of finances, and responsibilities for implementation of information policy programmes every year.

The framework of the Estonian information policy was concentrated on the following four fields: modernisation of legislation, assistance in the development of the private sector, development of communication between the state and the citizen, and acknowledgement of problems related to information society. Every year the information policy framework has been developed further and the Government has been defining general priorities for implementing information policy for the coming year. According to the Government decision of 14 May 2002 the information policy priorities for 2002/2003 are as follows:

- development of services for citizens, business sector and public administration, especially the elaboration of ID-card applications, proceeding also from the list of e-Government services defined in the *eEurope+ Action Plan*;
- improvement of skills and access of social groups in unequal position for using electronically provided services;
- elaboration and introduction of systems for digital document management and archival processing;
- development of the system and infrastructure of state registers, including the development of systems that ensure the maintenance of databases and the introduction of the data exchange layer (project "X-Road") of information systems;
- better provision of schools with computers to achieve the ultimate goal – one computer per 20 students;
- launching of the Tiger University programme to support the development of information and communication technology (ICT) infrastructure and academic ICT staff, and the infrastructure for post-graduate training.

In the background of these tasks, which are mainly aimed at developing ICT infrastructure, the purpose is to develop and integrate the ICT infrastructures of the state and local governments into a general citizen-friendly service environment that would observe the principles and requirements of the development of democracy.

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[2] http://www.eik.ee/english/policy/princip.htm, came into force on 29.05.1998; RTI 1998, 47, 700
[3] http://www.eik.ee/english/policy/plan.htm

DATABANK CONSULTING

A strategic document – **Knowledge-based Estonia** – was compiled the Government in December 1999. Understanding that knowledge, creativity and innovation have a major role in the long-term competitiveness of the Estonian economy has led to a strong governmental will throughout the recent years to improve Estonian innovation policy. As a result of these developments, the Parliament has approved (on 06.12.2001) the main innovation policy document: **Knowledge-based Estonia. Estonian Research and Development Strategy 2001-2006.** The document is oriented towards new knowledge, application of skills and knowledge and development of human resources, combined in balance, are seen as a source of economic and labour competitiveness and quality of life. This strategy highlights supporting user-friendly information and communication technologies and the development of information society as one of the three key areas to be promoted[4].

People's awareness of the information society in Estonia has grown rapidly in the result of cooperation between different organizations and of organizing several large-scale activities. In the public sector, the Ministry of Education is active in developing the IT base of Estonian schools through the Tiger Leap Foundation.

Estonian Informatics Centre publishes the computer journal "Arvutimaailm" (in Estonian) which is directed at a large audience and covers various aspects of information society. In co-operation with the television company TV3, information society and technology related transmissions have been delivered. A journal "Baltic IT Review " (in English) is published.

The main organization in the third sector active in raising the awareness of people has been until 2000 the *Open Estonia Foundation*, which through project calls has financed several innovative information society projects (for example the creation of Public Internet Access Points, development of on-line information services, organizing seminars and conferences). There are also several third sector professional organizations such as the Estonian Computer Association and Estonian Information Technology Association.

Estonian National Co-ordination Office for awareness and IS implementation (national ISPO) is the Estonian Informatics Centre. It has been established in 1997 under the administration of the State Chancellery to solve the main IT problems common for several state organisations and to arrange the work of the state's information systems.

Political awareness is supported by a number of public sector programmes (e-Government, e-county, e-citizen, e-Business etc) as well as private sector projects. The latest project **Look@World** was started in April 2002, it provides free of charge basic computer and Internet training for 100 thousand persons (Progress report, 2002).

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[4] The other two areas are: bio and gene technologies and their application; and innovation industrial and environmental technologies

DATABANK CONSULTING

International cooperation is complemented through membership of different organizations. Estonia is a member of the:

- *Joint High Level Committee (JHLC)*, which is comprised of the EU and CEEC government representatives.
- *International Council for Information Technology in Government Administration (ICA)* (http://www.ica-it.org/), established to promote the exchange of knowledge, ideas and experiences between Central Government IT Authorities.
- *Council of the Baltic Sea Sates (CBSS)*. The aim of the council is to promote and coordinate cooperation between the Baltic Sea States (http://www.baltinfo.org/).
- *Baltic Council of Ministers (BCM)* (http://www.bcmvs.net/) is an institution for facilitating the cooperation between the governments of Estonia, Latvia and Lithuania, formally established in 1994.
- *e-governance academy* is a regional learning centre in Estonia, set up by the Republic of Estonia, United Nations Development Programme (UNDP) and Information Programme of Open Society Institute (OSI). The centre aims to promote the use of ICT in the work of governments and in democratic practices. The centre provides training in e-governance and e-democracy, serves as a platform of exchange of experience and conducts related research.
- *European Environment Information and Observation Network (EIONET),* since January 2002 a full member

Estonia has participated in a number of international projects[5] (e.g. *eEurope+ 2003*[6]*, Northern eDimension*[7] *(NeD), European Survey of Information Society*[8] *(ESIS), Estonian eVikings*[9]*, etc)*

3.2.   The national context for the implementation of eEurope in Estonia

The issue of e-relevance is expressed in the document of eEurope+ 2003, the common project for implementation of the Information Society in Europe. The Action Plan was compiled by candidate countries with the support of European Commission (June 2001).

The Information Society driven objectives will contribute to Estonia's active participation in implementing EU Lisbon Strategy and achieving the goals of the eEurope 2005. At the same time they are consistent with the criteria applied to the ERDF support for the development of information society during the period 2000-2006.

Based on eEurope 2005 Action Plan as well as on the Estonian information policy documents and strategies, each year the Department of State Information Systems (RISO) prepares the Implementation Plan for Estonian Information policy to be endorsed by government.

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[5]Department of State Information Systems (www.riso.ee) Last modified 27. Nov. 2002

[6] Information on eEurope+ at http://www.europa.eu.int/eEuropeplus and relevant press releases together with the conclusions at http://europa.eu.int/comm/gothenburg_council/eeurope_en.htm

[7] NeD Action Plan and the joint statement of ministers were adopted at the ministerial meeting in Riga on September 28, 2001. Estonia is one of the leaders of the joint political initiative and leads the workgroup of action line "ICT security", http://www.riso.ee/nordic/.

[8] There is a comprehensive database of information society projects, actions and contacts established (http://www.esis.ee/index_eng.html)

[9] Special attention is paid to updating and giving advice for better focusing of the national research and technology policies. (http://www.esis.ee/eVikings/index.en.html)

DATABANK CONSULTING

The Estonian Foundation for European Union Education and Research Programmes "Archimedes" was established by the Estonian Government in April 1997 for the co-ordination and implementation of various EU programmes and initiatives in the field of research and education. Its activities also include activities related to the developments of information society.

Organisational structures for directing IT development in Estonia in the public administration have been developed[10] (see Figure below). In 2000 the Government decided to transfer the organisational units dealing with the co-ordination of IT development in the public administration to the area of government of the Ministry of Transport and Communications (E-policy, 2002).

Department of State Information Systems is a structural unit of the Ministry of Economic Affairs and Communications. The tasks of the department include the coordination of state IT-policy actions and development plans in the field of state administrative information systems (IS): state IT budgets; IT legislation; coordination of IT projects; IT audits, standardization; IT procurement procedures; international cooperation in the field of state IS.

The private sector has been more involved in the work of the latter as well as in the activities of several work groups. A positive example would be the working group, which deals with the implementation matters of digital signature, where the representatives of banks, *Eesti Telekom* and IT companies have often been the initiators of activities and agreements.
The Estonian Informatics Centre is a state agency providing ICT services to the ministries and other government agencies. According to the action plan ministerial and county IT councils were established. Such councils were formed in many government agencies.

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[10] Source: E-Policy Development in Transition Economies 2002, Department of State Information Systems, Estonian Informatics Centre, www.eik.ee

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Figure 3-1 Organisational structure of ICT development management in Estonia

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3.3.   Commitment to introduce e-services

In 1997 The Tiger Leap Foundation (www.tiigrihype.ee), was established to realize educational objectives of e-Estonia through The National Tiger Leap Programme (1996-2000) for computerization of Estonian schools. The main goals (the ratio of one PC per 10-20 students, Internet connection to each school, and the basic computer training for all teachers) have been mostly achieved by today. In 1997-2000 besides the state financing, the programme has been supported by the local governments and the private sector.

The Tiger Leap Programme is continuing under the name The Tiger Leap Plus Programme for ICT in Estonian schools in 2001-2005. The goals of this programme are in accordance with educational objectives of eEurope and are focused on four priorities: ICT competence; virtual learning; sustainable development of infrastructure and collaboration of all parties involved: the state, local governments, schools, parents and organizations; elaboration and implementation of principles and different co-operation forms. E-Education issues are included into the information policy priorities for 2002/2003.

For the purpose of guaranteeing the sustainable development of ICT sector in Estonia, a National ICT Programme for Higher Education[11] has been approved by the Estonian Government in January 2002. The Tiger University Programme goals in 2002-2004 are to support the development of the ICT infrastructure at higher educational establishments as well as of ICT academic staff and degree courses' infrastructure. Private IT College set up by EITF gives a three-year applied higher education which combines both IT and telecommunication. The ministry of Education supports IT College and in the first years the state cover a large part of the costs.

In addition to the Tiger Leap Programme some other initiatives have promoted IT development in schools. A Phare project – Information Systems in Education[12] (ISE), has created a network of 20 pilot schools with the main task of introducing into local schools the school management software Extens, acquired within the framework of the project. Phare ISE has supported the training of more than 1800 teachers in the use of computers in the classroom and organised the Telematics conferences. PHARE ISE initiated introduction of the European Computer Driver's Licence in Estonia. Other notable projects are:

- Co-operation projects of the Nordic countries and the Baltic countries: "BaltNet", "Distance Training for Teachers", "School Development in the Information Era" (www.tiigrihype.ee).
- Miksike Llc[13], which has a virtual learning environment with a wide circle of users and virtual assistant teachers, as well as popular virtual educational services, including electronic worksheets, a pupils' factory, story-telling and drawing competitions and academic competitions, was funded by Tiger Leap.
- Almost 100 Estonian schools are actively organising and participating in learning projects such as the European School Project, I'EARN and Globe, mediated by international organisations. Upon the initiative of the Active Learning Centre at Tartu University, simulation games have been organised via Internet since 1993, and have been attended by almost 250 schools and 4000 pupils over the years.
- The Open Estonia Foundation has funded several extensive educational projects promoting ICT infrastructure in schools and universities and teacher training with a budget of almost 5 million EEK.
- Within the framework of the Village Road Programme (Külatee), the installation of Internet connections in many county schools has been financed.

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[11] The Tiger University Programme – www.itcollege.ee/inenglish/tigeruniv_programme.php - administered by the Estonian Information Technology Foundation (EITF, www.itcollege.ee/inenglish/eitf.php)
[12] www.ise.ee/docs/strategy/executiv.htm
[13] www.miksike.ee/1lehekesoleme.html

DATABANK CONSULTING

- Pathfinder[14]) is an English language output of the Estonian career planning database Rajaleidja - an information system dedicated to the field of career planning. Its objective is to introduce organised data about professions, studying and employment possibilities in order to reveal the wealth and diversity of career opportunities, and support people of different ages and backgrounds in finding and consciously constructing their own path in life.
- Online-Learning is operated on the Estonian education and training market by Trainator Ltd[15], the aim is to enlarge the knowledge base of the people who are oriented towards lifelong learning using innovative learning methods.

Work/skills/employment

The development of human resources has the highest priority in Estonia, the general objective is raising labour force potential and making better use of it. It is important to increase competitiveness on labour market through improving educational system and environment for life-long learning. The Ministry of Social Affairs is responsible for working out employment policy. Three Employment Action Plans has been prepared since 2000 that are structured in compliance with the EU employment pillars and guidelines (Employment Action Plan, 2002).

The draft version of the life-long learning strategy was prepared during 2002 (www.hm.ee) and will be finalized in 2003. Expansion of continuing training provision to increase re-training opportunities for adults, including opportunities related to the needs of the information society was one of the main priorities also in "Joint Assessment of Employment Priorities of Estonia".

To facilitate access to information, as of April 2, 2001, all employers can enter job vacancies, free of charge, on the Labour Market Board website (www.tta.ee) and all job-seekers have access to the website. All consultation centres of employment offices have established Internet connection. As for in-service and re-training of unemployed, relevant attention will be paid to computer training. In the 2nd half of 2002 a new information system for labour market services was adopted and training was arranged to all the employees who would be working with the labour market information system.

In January 2003, the preparation of the Internet based self-service job seeking system was started. The aim is to facilitate access to labour market services. The information system contains data on vacancies, a CV database, and a database of training offered. The system enables all the users to enter their CV-s free of charge into the database. It also gives employers and instructors a free of charge opportunity to enter job offers and training opportunities into the system (Joint assessment, 2003). Preparation for the joining with the European labour market information system EURES is continued.

Labour force surveys include the main base for information on labour market. The Statistical Office of Estonia (www.stat.ee) conducted the first LFS, based on the methodology of ILO at the beginning of 1995, which includes a retrospective part since 1989. Since 2001, the LFS questionnaire includes an ad hoc module, the contents of which vary from year to year. The module is compiled in accordance with the relevant EU regulations. The aim of the added module is to gather detailed information about an aspect of life directly relevant to the labour market. The 2001 survey addressed issues relating to length and patterns of working time (Statistical, 2002).

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[14] www.rajaleidja.ee/pathfinder/about_pathfinder/index.htm, www.rajaleidja.ee/tunne_kutseid/sisu.htm
[15] www.edukas.ee/index.php?go=1&I=13&lang=eng

DATABANK CONSULTING

In 2002 "Ariko Marketing" carried out survey "Impact of information and communication technology and telework use on employment" (www.sm.ee). According to the survey 3.5% from adult population is doing telework in Estonia. Some questions about teleworking and IT use were also in "Working Life Barometer" questionnaire[16] (Antila, J, Ylostalo, P., 2003)

The Telematic Information Network (www.sm.ee/Telematic/index.html) was deemed to be an effective way to strengthen collaboration and improve synergism between the activities carried out by several bodies in the Baltic region. The focal point of this Telematic Information Network will be the Finnish Institute of Occupational Health.

Social inclusion

The issues of relationship between social inclusion and information society in Estonia can be discussed from various aspects. First, trying to identify groups of the population and individuals who have limited access to using a computer and Internet services. This group may contain on the one hand, people who cannot use the Internet because it is not available for them, because they have inadequate educational level or lack of motivation. The study "Estonians Digital Divide and How to Bridge It" was conducted in Estonia in 2002 to identify the digital divide (Kalkun, Kalvet, 2002). On the other hand, there are people for whom computer and access to the Internet would be an opportunity to integrate with society. The importance of computer and Internet was first mentioned in "The General Concept of Disability Policy of the Republic of Estonia", which was approved in 1995 and provided standard rules for creating equal possibilities for the disabled people. If the emphasis in reducing the digital divide for the former group can be focused on changing attitudes and training, then for making Internet services available for the disabled people we should also use various additional technical resources.

The use of computer and Internet by disabled people in Estonia has been discussed in the study "Using the Internet in Rehabilitation of People with Mobility Impairments" (Kikkas, 1999). However, the number of disabled people analysed in this study was limited and did not give an adequate picture of the real need for relevant measures. Much attention is paid to teaching disabled children to use computer and the Internet in special schools (Tiger Leap), indicating that inclusion of disabled people in the society will be much better in the future.

Information Society development in Estonia has become one of the main priorities in the political agenda, focusing on supporting fast economical growth, making government and businesses more effective, faster and cheaper. Basic ICT infrastructure is already today widely available. At the same time, there is constant focus on offering possibilities for all social groups and regions. Many projects are dedicated to this issue. Preconditions for Estonia's fast development have been (Progress report, 2002):
- Positive attitude of citizens toward new technology
- Well educated population
- Strong influence from Finland and Sweden
- Good ICT infrastructure and highly developed e-banking systems
- Inherent flexibility of small country
- Strong political will to use ICT as a tool for fastening the development
- Stable coordination mechanism at government level and stable IT-budget as a part of state budget (IT-budget has been many years around 1% of the state budget).

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[16] This survey was coordinated by Ministry of Labour (Finland) and carried out in Estonia, Latvia and Lithuania in 2002.

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Therefore, technological opportunities are being applied in the system and is becoming our part of everyday work, where everyone can take part in it.

e-Government[17]

In 1998 in the course of the projects "Vahetu Riik" ("Direct Government") a common access point for Estonian government agencies and constitutional institutions was created through an Internet domain: riik.ee and virtual Estonian Web Centre was established for administering it. The **portal "e-Government"** has been supplemented by new headings, databases, links etc[18].

A Public Information Act (enforced in 2001) stipulates the accessibility of the essential public data online, including legal, administrative, cultural, environmental and traffic information. The Ministry of Transport and Communications has provided a free server at http://ats.riik.ee/pub/ (in Estonian only), which is meant for public sector agencies that have to meet the requirements of the Public Information Act. The portal's administrative organisation has stabilized and the quality of the content has improved. There are a number of e-information systems in use.

TOM.riik.ee.
The aim of the e-Government portal's website TOM or "Täna Otsustan Mina" ("Today I Make Decisions"; http://tom.riik.ee, in Estonian) is to enhance the population's participation in the state's decision-making processes. One can submit ideas, guidelines, and thoughts and comment on draft legislation submitted by others or elaborated by ministries during the creation phase. Ideas that have found support among users will be submitted by Prime Minister's resolution to respective agencies to be executed. The public can constantly monitor what happens to the idea. In order to submit, comment, vote, and sign ideas one has to register before. Everyone can read the ideas and comments.

Service "Forms in the Internet[19]"
The service has made document forms available for citizens to communicate with state agencies. Forms are in PDF-format and can be printed out (with over 230 available) or filled in directly on the screen (over 110). At present the citizen can submit forms obtained from the Internet or filled in on the screen to send them by mail to the respective state agency, which will process the forms. Thus the service saves time for the citizen. At the same time it is not possible to transmit these documents directly to state agencies via the e-Government portal due to the lack of secure and authenticating transmission system of digital documents. Presumably such possibility will be provided as a result of the realization of document management programme and the e-citizen project or through the implementation of ID-card.

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[17] Main source for the overview of e-Government is used: eEurope+ 1st Progress Report – Estonia. March 2002 (www.riso.ee/et/eEurope+_1stprogressreport.htm).

[18] Several virtual servers and websites of state institutions and projects use the domain's resources, e.g. www.sisemin.gov.ee (Ministry of Internal Affairs), www.tsm.ee (Ministry of Transport and Communications), www.bcmvs.net (Baltic Council of Ministers Virtual Secretariat), www.riigiteataja.ee (State Gazette, in Estonian), www.riso.ee, www.riik.ee/dh/ (Document Management Programme, in Estonian), www.riik.ee/ekodanik/ (e-citizen, in Estonian), www.riik.ee/ristmik/ (X-road, in Estonian), www.riik.ee/evalimised/ (e-elections, in Estonian) etc.

[19] The service is available at http://www.riik.ee/blanketid/ and general information about the application of the service is available also in English and Russian.

DATABANK CONSULTING

State registers reform (project "X-Road")

The development of the modernization programme of national databases started in 2001. X-road will be a system that would enable agencies, legal institutions and individuals to search data from national databases over the Internet, provided that they are entitled to do so. The system will ensure sufficient security for the treatment of inquiries made to databases and responses received. In 2001 all the essential software components of the X-road environment were elaborated and tested and the technical and user documentation of the project was drafted. Vision for 2003 foresees that the state has access to databases as an integral whole 7 days a week and 24 hours a day, which ensures that info can be used by citizen, civil servants and enterprises.

Project eCitizen

A nation-wide project for developing cooperation between Estonian citizens and the public sector through the Internet. It aims at improving the quality, availability and speed of public services to the citizen; increasing the efficiency of public sector institutions by providing a common IT platform for providing basic services in all local governments; improving the democratic dialogue with the citizen and empowering the citizen in the democratic process. The implementation of the Citizen Portal and the four services (education, development, healthcare, democracy) were started in early 2001. Public procurement procedures were done and by the end of 2002 first phase of the project was completed, providing the opportunity for the citizen to communicate with different state agencies through one portal.

By 2004 all state and local government agencies will be providing services through the Internet; by which it is anticipated that 60% of the population will be using the Internet on a daily basis. There will be a citizen portal in function, which would include the following[20]: situation layers, services layer, direct services, procedural services, e-democracy systems, citizen's document management system, e-mailbox and my portal. Project e-Citizen is related to other programmes, such as X-Road and ID-card, and systems that develop e-democracy; e-elections, TOM (Today I Make Decisions), e-County, etc.

E-TaxBoard

Since 2000 it is possible to fill *online tax declarations*. In the first stage of the e-TaxBoard application natural persons were provided with the possibility of electronic filing of their income tax returns via the portals of two banks – Hansapank and Ühispank. People can view their social tax notices over the Internet. The second stage of the project embraced the development and launching of the e-services for companies. Using the e-TaxBoard application, the taxpayers can:

- file, view and correct their VAT returns
- file, view and correct their social tax and withheld income tax returns
- submit their VAT refund applications
- view their tax account balances
- view their taxpayer account cards
- make inquiries about other persons' outstanding tax debts
- file their personal income tax returns
- view their social tax calculated, paid by employers and transferred to the Social Insurance Board.

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[20] Source: E-policy Development in Transition Economies 2002. Estonia, www.eik.ee..

DATABANK CONSULTING

In 2001 the e-Tax Board system was expanded and supplemented by services as well as additional information for taxpayers; special service packages were elaborated for the Central Criminal Police and Public Procurement Office. Similar applications, which pursue from the needs of a specific agency, are being elaborated for bailiffs, Police board, Health Insurance Fund and other agencies that have been entitled the right by the Taxation Act and tax laws to conduct inquiries in the register of taxpayers and withholding agents.

In the summer of 2001 the Taxation Act amendment entered into force, which requires state, rural municipality or city agencies to electronically submit declarations to the Tax Board provided that these agencies have info-technological means for that. The further aim is to make it obligatory also for large companies to communicate with the Tax Board via the Internet.

As of February 2002 ID-card owners can enter e-TaxBoard via the Tax Board's website (www.ma.ee) by using ID-card. If the taxpayer has not concluded an agreement for using e-TaxBoard, it will be concluded electronically at the first entering with the ID-card.

Document Management Programme 21(DMP) of government agencies
Is a co-operation programme for the transition to inter-agency digital document management. The aim of DMP is to digitalize the state's records management and bring it into conformity with information society requirements. The activities of DMP were aimed at developing the following fields: establishment of electronic management standards; strategic DMP training programme; testing and introduction of DMP results; development of an integral information system of legislation. There is co-operation with the joint project of *eCounty* to elaborate standards and administration of county government public information portal. The programme also aims to develop an integral information system of legislation, which would comprise the coordination of draft legislations, their legislative proceeding in the Government, in case of draft Acts their presentation to the Parliament, and the publication of passed documents in the State Gazette. In 2001 the pilot application of electronic legislative proceeding of draft legislation – *eJustice* – has been elaborated. The Parliament is publishing also electronic State Gazette[22] in addition to the printed publication.

Enforcement of the infrastructure for digital signatures (including ID-card)
The purpose of Estonian ID-programme is to use nation-wide electronic identity and develop a new personal identification card that would be a generally acceptable identification document and contain both visually and electronically accessible information (E-Policy Development, 2002). The implementation of ID-card[23] actually means establishing new nation-wide infrastructure in Estonia. The structure includes certification service provider (enforced in 2001), who issues certificates, and catalogue service provider, who takes care of making these certificates available for everyone and time stamp service provider (enforced in 2002), who issues time stamps for digital signatures, in January 2002 the first ID-cards were issued to the Estonian citizens. ID-cards also carry a certificate for allowing the use of digital signature.

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[21] Regulation of the Estonian Governemnt from 26 February 2001 has established new common bases for records management applying digital documents.

[22] Estonian Acts can be found on the homepage of the Estonian Translation Centre: http://www.legaltext.ee/endefault.htm.

[23] The Estonian ID-card includes also the Internet address of the ID-card owner in a generalized form. This address can be related to a person's everyday Internet address. More information on ID-card at http://www.pass.ee/2.html.

DATABANK CONSULTING

Project eCounty

Was initiated in 2001. In the last three years the Public Information Act, the Digital Signatures Act, and the Archives Act were passed. These acts presumed the readiness of county and local governments for digital management. A separate web portal[24] for introducing and promoting the project was contracted. The ideas of developing an Internet-based working environment and a web portal encouraged contracting a pilot application of Public Information Web Gate by the year 2002. County information portals are elaborated, which enable to fill in electronic documents; support the creation of employment; enable rural areas to participate in Internet-based learning; help equalize living conditions in rural and urban areas; support local initiative of rural areas.

Project Village Road25.

The county data communication target programme "KülaTee" (Village Road) is an information technology programme initiated in cooperation of county governments, the Estonian Informatics Centre, and the Department of State Information Systems (RISO). The aim of the project is to establish data communication services in the counties and join the information systems of local governments with those of public administration.

Project eJustice

Initiated in 2000, aims at creating an information system for digital legislative proceeding. Its purpose is to create a user-friendly co-operation environment where drafts for coordination as well as the whole information about the draft's life cycle (draft legislation, draft elaboration timetable, coordination date, draft elaboration workgroup, contacts, different comments, questions, search engine etc) would be available. The created system will relate draft legislation process between different institutions into an integral whole. And also citizens can express their opinion to the drafts (see also TOM).

e-services of National Land Information Systems

The National Land Information System (LIS), which was completed in the summer of 2001 and which makes the administration of information related to Estonian lands easier and conveniently available and usable over the Internet. The elaboration of the system was started in the National Land Board in 1995 on the basis of a strategy elaborated by a Phare project (EU Phare 1997-1999: *Land Information System Development in Estonia*) with the aim to make all information concerning land digital. In addition to CIS, the land information system also includes data management and application via public services in the Internet.

Estonian Government of Ministers Session Information System26.

A support system for the organization of minister's sessions to automate the preparation processes and proceedings of the Estonian Government Cabinet meetings. The final objective is to prepare all materials digitally and thus to reduce coping costs and delivery time.

e-State Treasury

Is an Internet application for agencies maintained by the State Treasury, which provides an opportunity for the agencies to communicate with the State Treasury via the Internet. Agencies can make payments, reservations, send notices, and receive statements of payments and returns. All this is performed quickly and safely by using the authentication services offered by banks.

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[24] http://www.emaakond.ee, in Estonian, with a general overview in English.
[25] Village Road (KülaTee) is in the administration of the Estonian Informatics Centre. http://www.kylatee.ee/sisue.htm
[26] The programme is in the administration of the State Chancellery (http://www.riik.ee/valitsus/viis/viisengl.html).

DATABANK CONSULTING

Development programme of Public Internet Access Points (PIAPs)
There were 600 public and branch libraries in Estonia with a PIAP by the end of 2002. Libraries, especially in rural areas where smaller post offices and banks, medical care centres, community centres, schools etc are being closed have acquired an ever-increasing importance as public service providers. Therefore it is the public libraries that provide citizens with free access to public information and information resources of the whole world.

e-Commerce

Estonia, similarly to all the other NAS countries is adjusting to new technological-economic paradigm, which consists of widespread implementation of ICT in different areas of life and of economic growth based on technological innovation. The Estonian market has been very receptive to different innovative solutions of which are:

- **Internet banking:** One of the strongest advantages in the development of e-Commerce is the widespread Internet banking, which favours the rise of positive attitude towards e-Commerce. There are approximately 475,000 Internet banking clients in Estonia (the whole population being 1,37 million). Electronically initiated payments are responsible for approximately 90% of their total number (incl. Internet-bank, telebank, card payments). Internet penetration in banking enabled to reduce the number of bank offices.

- **Internet shopping:** There are a number of Internet shops offering books and publications, tools, household appliances, software and hardware, multimedia, flowers, etc. According to the Eurostat survey "Community Survey on ITC usage in enterprises", one fourth of enterprises used the Internet to market their products. Half of respondents had their own web site, of which 67% enterprises included information also in a foreign language. The proportion of employees who used computers was largest in wholesale enterprises, next came retail, postal and telecommunication services (Information, 2002)

    On-line tourism – it is possible to book and buy air and ferry tickets on-line.
    Secure servers – Estonia has achieved a solid position in secure server's domain which is essential for e-Commerce and trust.

- **Mobile services: Mobile parking (parking of cars using mobile telephone) services has in** two years grown to be extremely popular, in Tallinn and some other towns it forms almost 50% of parking payments. M-parking is the first of a long list of services implemented through mobile phones, eg. Estonian can purchase public transport and other tickets, buy drinks, get information from the business register, check their bank accounts by mobile phone etc.

- **Improving online access:** and providing different services (see above "E-Government") is essential also for the enhancement of the development of SMEs, as the use of information and communication technology has a great potential to reduce the administrative burden on enterprises and to simplify respective procedures.

DATABANK CONSULTING

- **Intelligent transport systems: Transport Logistics Supporting Value Added Network:** A business company AS EDI VEKTOR was established in Autumn 2000 in order to implement the Transport Logistics Supporting Value Added Network (VAN) and to develop and provide on its basis EDI services to the large variety of customers. The core of this project is to integrate Estonian transportation, logistics and trade facilitation related organisations, both public and private, into the virtual optimised EDI network. The project was started by developing the "e – border crossing" services, that involves the digital data interchange among forwarders, Estonian Customs and other border authorities.

e-Healthcare

Health care has benefited from Internet technology: public institutions are using the Internet to improve their service and new business opportunity are emerging in distance medical and health care. There are several firms offering medical software. The Estonian Health Sector Development Project 2015 approved by Government in May 2000 has aimed at restructuring the health care system including the United e-Health Information System (Estonian Health Project 2015, 2000).

The national health care and also WHO statistical databases are public and accessible through the Internet[27]. Almost all national registries (e.g. Cancer Registry, Mortality Database etc) were computerized in 90s. There are several health portals (e.g. www.kliinik.ee; www.inimene.ee etc), independent health-related websites, health care institutions' web-sites providing information and professional comments on health and medicine topics and there is a possibility to consult by e-mail with doctors, pharmacists, dermatologists (E-Europe+ Progress Report, 2002).

In order to make communicating easier and more convenient for clients and partners by employing the means of modern information technology Estonian Health Insurance Fund will see that in 2004 the partners and customers have the opportunity to settle the accounts and manage services.

Tele-medical experiments have been performed in Estonia already, but the systematic use of these possibilities started in 2000 when within this year 30 tele-consultations were conducted in Estonia (Linnamägi & Asser, 2002). The new health care development plan for 15 years envisages development of a telemedicine network. Spread of extensive use of telemedicine is restricted by the lack of data protection and relevant laws.

There is an existing telemedicine network between five health care institutions in Estonia since 2000 in relation of BIT NET project. Digital techniques will dominate radiology within just a few years. The example may be the use of home tele-monitoring by cardiologist using home monitoring equipment by Docobo. The CT and MR technology will further reduce the use of invasive radiology. Progress in telemedicine will soon create possibilities for distant evaluation of pictures between different facilities (Estonia Hospital Master Plan 2015, 2000)

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[27] www.stat.ee, www.sm.ee, www.haigekassa.ee

DATABANK CONSULTING

3.4. Main policies in support of the development of ICT networks and high-speed infrastructure in Estonia

The national strategic action plans for developing information and communication technologies (ICT) are grounded in the *Principles of Estonian information policy* and the implementation plans for the Estonian information policy annually revised by Government.

The overall developments of Estonian telecommunications policy are oriented towards liberalisation. This means the end of the Concession Agreement[28] signed between the Government of the Republic of Estonia and Estonian Telephone Company Limited (ETC Ltd.). New Telecommunication Act was approved in February 2000. The Act is in line with EU recommendations and telecommunications sector is fully liberalized starting January 2001. With the enforcement of the Act Estonian National Communications Board (NCB) started working as independent national regulatory authority. A number of new acts were enforced: e.g. Cable Distribution Act (enforced in April 2001) regulates the terms of deployment and conditions of operation of cable networks, and on the provision of cable television services and telecommunications services by cable operators.

Estonia's society has been characterized by high readiness for the implementation of contemporary technologies and experimenting with new solutions. So far, the development of information society in Estonia has been concentrated on the development of telecommunications infrastructures and providing the availability of Internet (Estonian National Development Plan, 1002). Estonia has been characterized as a considerably successful in the implementation of information technology, but development of knowledge-extensive industry and new information technology solutions has been rather modest. Nevertheless, in a number of medium-sized companies foreign ownership (mostly from Nordic countries) is represented (the share of foreign capital usually exceeding 50%) and IT specialists from Estonia are employed by foreign companies in abroad.

Estonia has a quite advanced telecommunications infrastructure. Today in each part of the country, business and private customers have access to the telephone network and ISDN. The larger and some the smaller cable TV networks have started to offer Internet access. The main competitor for fast Internet access is ADSL technology, which will be available for almost all households maybe after 5 years. The liberalization of telecom markets has led to a boom in mobile communications in Estonia beyond any expectation. With a diffusion rate of more than 50 subscribers per 100 inhabitants, Estonia ranks among the leading countries in Europe. Three operators have been granted licenses either in the GSM 900 and/or DCS 1800 frequency range. According to estimations, mobile, PC, and Internet penetration rates will increase within the next few years and will catch up with the Nordic levels. The fixed lines and cable penetration will slightly increase or will remain at the current level (IT in Public Administration., 2002).

At the same time the number of IT-users in Estonia has reached a certain level of saturation and the increase in the number of Internet users has stopped. Therefore we can expect the digital gap between the users and non-users of information technology to become wider (Estonian national Development Plan, 2002). To overcome this situation Estonia must become more expedient and effective than before (e.g. develop training system, motivate non-users, find new IT solutions).

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[28] The Concession Agreement signed in 1992 granted exclusive rights to ETC for eight years (until 01.01.2001) to provide basic services (local, national and international switched fixed voice telephony services, telex and telegraphic services, their installation and interconnection to them), (http://www.telekom.ee/concession_agreement.htm

DATABANK CONSULTING

Government initiated ICT policies are directed mainly to IT education, activities related to e-Government and access to public IT based services. The main goal in Estonia is to create new, user-friendly IT solutions for e-Government, e-Education, e-Health care, e-economy etc. that would motivate people to use information technology and will provide access for people living in less-favourable conditions. This needs to be supported by development of education and training system, and enterprises' technological competitiveness.

3.4.1. Bibliography

1) **Antila, J., Ylostalo, P.** 2003. Working Life Barometer in the Baltic Countries 2002. Helsinki.
2) **BIT NET project**. Baltic International Telemedicine NETwork (2002). Completion Report. www.bitnet.promotor. telia.se
3) **Celichowski, Jerzy.** 2001. Estonian e-Democracy Report. 2001. (www.osi.hu/infoprgram/e-Government%20%20estonia%20proof%20read.htm)
4) **eEurope+ 2003.** Progress Report. Candidate Countries. e-Europe+ 1st Progress Report - Estonia. 2002. (www.riso.ee/et/eEurope+_1stprogressreportr.htm)
5) **Employment Action Plan 2003** .(2002). Ministry of Social Affairs (www.sm.ee)
6) **E-Readiness in 2002:** Defining and Achieving Your E-Fitness Goals 2002. McConnell International, no. 4, Feb. 2002, www.mcconnellinternational.com/ereadiness/default.cfm
7) **Estonia Hospital Master Plan 2015**, 2000
8) **Estonian Health Project 2015** (2000). Development Project. Estonian Ministry if Social Affairs. www.tervishoiuprojekt.ee
9) **Estonian National ICT Programme for Higher Education**. 2002. The Tiger University. EITF (Estonian Information Technology Foundation) (www.itcollege.ee/inenglish/tigeruniv_programme.php).
10) **Foundation Vocational Education and Training Reform in Estonia.** Development Plan for 2002-2006. 2002. Foundation Vocational Education and Training Reform in Estonia, PW Partners. (www.sekr.ee)
11) **Hernesniemi H.** 2000, Evaluation of Estonian Innovation System. Phare Support to
12) **Information Systems in Education** – ISE. 1997. Ministry of Education. (www.ise.ee/tutvustus/mison.htm; www.ise.ee/docs/strategy/executiv.htm)
13) **Information Technology 2001**. In: Estonian Statistics 11/2002, Statistical Office of Estonia, Tallinn
14) **Information Technology in Business Administration**. 2002. Yearbook, Estonian Informatics Centre
15) **Joint Assessment of Employment Priorities of Estonia. Progress Report** 2003. Ministry of Social Affairs of Estonia
16) **Kalkun M., Kalvet T.** (Eds)(2002) Report Estonian's Digital Divide and How to Bridge It. EMOR, PRAXIS, Tallinn (www.oef.org.ee/valjaanded/diglohe/digdivide_ee.pdf).
17) **Kalvet T., Pihl T., Tiits M.,** 2002. Analysis of the Estonian ICT Sector Innovation System. Executive Summary. Estonian eVikings, Tartu
18) **Kikkas, K.** 1999. Using the Internet in Rehabilitation of People with Mobility Impairments, TTU, Tallinn (www.kakupesa.pri.ee/kakk/thesis)
19) **Knowledge-Based Estonia**. Estonian Research and Development Strategy 2001-2006. Ministry of Economic Affairs and Communication. (www.mkm.ee/index.html?id=899)
20) **Lepik, Liivar. 2001**. Comparison of Estonian and European ICT sectors' state of affairs and developments. Information Technology in Public Administration of Estonia. Yearbook. Estonian, Informatics Centre. (www.eik.ee/atp/eng/index.html?id=292)
21) **Linnamägi Ü., Asser T.** 2002. Mida võimaldab telemeditsiin (ingl tõlge). Horisont 3/2002, pp.35-39

DATABANK CONSULTING

22) **Odrats I.** (Ed.) 2002. IT in Public Administration. Yearbook 2001, 2002. Ministry of Transport and Communi-cations, Tallinn

23) **Sectoral Study in the ICT in Estonia**. 2002. PW Partners. (www.sekr.ee/www/seirekeskus/kutseharidus_keskus_main.php)

24) **Statistical Office of Estonia** (2002). Tööjõud. Labour Force 2001. Tallinn

25) **The Tiger Leap Plus Programme. ICT in Estonian Schools in 2001-2005.** 2001. Ministry of Education (www.tiigrihype.ee/eng/publikatsioonid/index.html)

26) **The FinEst bridge – Finnish-Estonian collaboration in occupational health** 2002. EU PHARE, Estonian-Finnish Twinning Project on Occupational Health (ed by Matti Ylikoski, Suvi Lehtinen, Tiit Kaadu, Jorma Rantanen). IV, 128 p. Helsinki: Finnish Institute of Occupational Health; http://www.sm.ee/Telematic/Twinning/finest_bridge.pdf

DATABANK CONSULTING

4.   Hungary

4.1.   Political awareness to information society issues and eEurope in Hungary

ICT related Government programmes and legislation prior to 2002
Even before the political changes of 1989 successive Hungarian governments have designed various programmes to meet the challenges of technical development in the field of Information technology. As early as in the mid 80s an important programme called *The Development Programme of the Information Infrastructure* (IIF) was elaborated by experts the designated by the Hungarian Prime Minister's Office. The implementation of this programme lasted from 1986 to 1994. From 1995 onwards t*he National Information Infrastructure Development Programme* (NIIF) has followed, and in 1996 the *National Information Strategy*.

In the meantime in 1996 the Ministry of Education has developed the project of '*Sulinet*' (SchoolNet). This was a programme targeting elementary and secondary schools, offering Internet access for these institutions in the framework of tenders.

In 1997 a new programme, called *Governmental Information Strategy* (KIS) was developed by experts nominated by the Government, in order to harmonise various development efforts taken in different branches of the Government.

In December 2000 the so called *Széchenyi Plan* was launched. This was a concerted system of support measures, published and implemented mainly by the Ministry of Economy. The *Széchenyi Plan* targeted a wide range of actors of the Hungarian public and private sphere in order to accelerate economic development in the country. During the two years operation of the *Széchenyi plan* there were six main areas of the programme (Enterprise Development, Tourism Development, Residential Construction and Modernisation, Regional Economic Development, Energy Saving, Employment Support). Among the target groups of this programme were small and medium size Hungarian companies, households, non-governmental enterprise development organizations (such as clusters) and others. One of the priority objectives of the programme was the promotion of the modernisation of the ICT infrastructure and ICT usage within the country, which the Programme called the establishment of the so called '*e-Hungary*.

The so called '*Fast Internet Project*' was launched in 1997, compiled by the experts of the Hungarian Academy of Sciences. It described the technical and social conditions of disseminating the broadband Internet connection. In 1998 info-communication issues have been delegated to a high level of the Government's structure. While earlier these issues have belonged under the jurisdiction of the Ministry for Transport, Telecommunication and Water Management, in this year a special State Office was created under the Prime Minister's Office devoted to ICT and Information Society development.

In 1989 the Hungarian Parliament issued the Unified Telecommunication Law.

In 2001 the legal background of electronic governance was further strengthened by the approval of the   Law "On the digital signature" This piece of legislation deals with three areas:
- provides the opportunity of using electronic signature;
- defines the rules of providing services related to the electronic signature;
- regulates the public supervision activities related to these services.

DATABANK CONSULTING

With the establishment of the legal guarantees of accepting digital signature, the introduction of Internet based tax reporting has started and tax returns of medium sized and large companies are being routinely filed in the capital Budapest and the surrounding county Pest.

A recent (2002) important document of Hungary's EU accession is the so called *National Development Plan* (NFT). The formulation and implementation of the Plan is within the responsibility of a political secretary of state within the Prime Minister's Office. The Plan outlines the main aims supported by EU (PHARE, ISPA, SAPARD) and Hungarian budgetary funds after EU accession of the country. The Plan has a specific chapter devoted to the development of Information Society. The document states: "In order to achieve and sustain community welfare, improve the conditions of competition and for an increased quality of life, a more efficient provision of community tasks, the modernisation of the public administration and the establishment of the service oriented state is required. An important part of that is the establishment of the electronic public administration, a significant part of which is the electronic local government services. "

The 2002 Decree on the Ministry of Informatics and Communication
The new Government elected in 2002 has further strengthened the bodies responsible for ICT and Information Society by creating the Ministry of Informatics and Communication. In 2002 the Government has issued a Decree (141/2002/VI.28) concerning the Scope of Authority and Powers of the Minister of Informatics and Communication.

This Decree formulates the following Government aims:
- The development of a uniform and comprehensive government strategy in relation to Information Society,
- The co-ordination and supervision of ICT related technical activities inside Hungary and internationally.

It formulates the fundamental rights of Hungarian nationals of access to information, to communicate information and to communicate with others.

Policy principles. In order to perform the above tasks the Ministry shall organise and maintain special committees and develop appropriate institutions. The Minister's scope of authority includes the planning, implementation and operation of social, public, administrative, cultural, educational and economic programmes. The Minister shall submit a uniform government strategy concerning Information Society, an action plan aimed at its implementation as well as all regulations, whereby the opinions of economic agents, representative organisations of ICT users, of civil society and of agencies of public administration must be taken into consideration; to develop the principles of the Government's comprehensive Information Society policy; to develop the legislation related to Information Society; to collaborate in and supervise the implementation of the strategy for the government tasks required for the implementation of Information Society; to collaborate in the development of the rules of using funds related to the development of Information Society; to maintain a monitoring system to follow the development of the Information Society and to inform the government of its results; to develop and operate an information centre to efficiently provide information and to facilitate the building up of the Information Society.

Priority tasks. The following priority tasks are formulated for the Ministry:
- To issue legislation related to the development, implementation and proliferation of electronic governance with a view to rendering the activities of both central and local agencies of public administration transparent
- To standardise the electronic administration of agencies of public administration, including the modes of electronic publication of documents on the activities and budgets of agencies of public administration,

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- To develop, apply and broaden the use of security standards and systems suitable to provide protection against the risks inherent in information technologies,
- To specify the technical, qualitative and standardisation requirements of equipment and services procured out of state subsidies, public moneys or by way of electronic government procurement,
- To develop and spread the use of the electronic mode of judicial administration.

The Decree obliges the Ministry to follow the requirements of legal alignment with the European Union, to identify with the aims of the programme e-Europe. In order to accomplish the above aims, the following objectives have to be met.

- *Information Society:* to take action with regard to the legislative tasks related to Information Society. In particular, the framework for self-regulation of autonomous local governments and civil organizations regarding ICT development must be created. In order to establish the conditions of Information Society, the Minister shall facilitate the integration of wide strata of citizens into the Information Society. To promote digital literacy, to stop the widening of the digital gap
- *e-Content.* To ensure the enhancement of domestic Internet and digital content. To specify the modes, instruments, methods and technical IT content of safekeeping the national cultural heritage in digital format. To create the technical and legal conditions of the digital publication of text and images and sound and motion picture broadcasting, to standardise and develop the necessary information databases. To develop Hungarian-language digital services.
- *e-Government.* To develop co-operation between the bodies of state power and government. To encourage and facilitate wide-ranging access to the Internet by settlements. To improve the standard of public services and wide-ranging access to them with the help of information technology. To develop the terms and conditions of public procurement by electronic means.
- *e-Business.* To assist the Hungarian economy in joining the international e-economy. To develop co-operation between economic agents and the NGO sector and to encourage partnerships between them in order to integrate the company sector into Information Society. To develop the conditions of the e-economy, to improve the competitiveness of the various sectors of the Hungarian national economy. To develop the spreading of electronic commerce by enhancing consumer confidence. To develop a company support system enabling domestic small and medium-sized enterprises to stand up to the challenges of the e-economy.
- *Technical development.* To promote the development of information technologies, concerning the diversification of modes of spreading, to initiate the continuous expansion of IT, communications and related services, including postal services and their efficient operation. To ensure the spreading of Internet access and digital media.
- *Competition and liberalisation policy.* To enhance quality and price competition on the ICT markets by improving government activities facilitating market liberalisation.

The 2002 Information Society Strategy and its implementation
In 2002 the Government has elaborated and issued an Information Society Strategy. The document has been prepared in the Ministry for Informatics and Telecommunication. The strategy consists of the following domains of tasks:
- Information infrastructure
- Broadband Internet
- Digital content
- Electronic public administration
- Electronic economy and
- ICT-related research & development

The strategy also contains a financial chapter, which determines the financial needs of the relevant programmes towards the Government budget.

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The following applications and target are regarded as high priority development domains by the Strategy:
- Internet access of disabled persons
- Communication between local governments and citizens
- Electronic market places
- Electronic public procurement
- Digital libraries

In 2002 the Hungarian Government has launched various initiatives in order to implement the strategic programme of the eEurope project. A set of well financed tenders offering direct Government subsidies have been devised in order to facilitate Internet access of various important stakeholders of the Hungarian public and private networks of organizations.

Some examples of direct subsidy tenders:
- The Ministry for Informatics and Telecommunication has issued a tender with the total worth of 300 Million HUF to develop electronic content of public use. (In the second half of January 2003 1 Euro=250 HUF) Preference is given to contents of European use, to be applied in the member countries of the EU enjoy preference, moreover to projects with a credible business plan stating that the supported electronic content provision becomes self-sustaining after a certain period. Since the EU is going to launch a similar tender on e-Content, the Hungarian tender aims to prepare the ground for certain successful applications.
- The Government which was elected in Spring 2002, issued a "Second 100 Days Programme". In this document it stated that all Hungarian local governments will be provided with the possibility of access to the World Wide Web, in order to create equality form this point of view for citizens living in remote areas. This aim has been realized with the help of a tender, issued for local governments with the title "e-Democracy - local governments on the World Wide Web". Successful applicants receive support for basic info-communication devices and Internet access.

4.2.   The national context for the implementation of eEurope in Hungary

e-Readiness and its measures

Hungarian research institutions and academic research centres have performed various surveys in the country in order to reveal the mechanisms of spreading of ICT innovations. These surveys were devoted to the changing information-handling and telecommunication behaviour of households, entrepreneurs, schools, hospitals, local governments, community computing centres and of various strata of the population..

Research efforts concentrating on the demand side of ICT platforms and applications have revealed that Hungarian society, moreover the public and private networks of institutions are susceptible to embracing ICT innovations to an extremely varying degree. Openness to enter into electronic communication depends on age, educational level, previous experiences, trust, distance from cities, social class and embedded ness into existing social, entrepreneurial or public networks. The school and the work place plays a major role in transferring the know how of recent waves of ICT usage to those strata of the society, which will retransfer these capabilities to ever wider circles of related family members, colleagues, friends, and other informally connected people.

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A relatively recent study [PINTER 2000] on the development of Hungary's Information Society has been devised to follow the structure of the questionnaire developed at Harvard University's Centre for International Development lead by Jeffrey D. Sachs. The original questionnaire is available at www.readinessguide.org.

The Hungarian researchers have kept the questionnaire's five domains (e.g. 1. Network Access) and the 19 fields (e.g. 1.4. hardware and software) contained within the domains. Indicators were developed to show the readiness of the country in each of the 19 fields in order to systematically reveal Hungary's state of Information Society development. The interpretation of these composite indicators is as follows:

- 100 percent indicates total readiness, meaning that given field is ready for embracing and producing information advancements at the fastest pace and reaches the average standard of the developed nations.
- On the other hand 0 percent refers to a complete lack of readiness.

These percentages must be regularly supervised as information developments are underway throughout the world including Hungary.

Tab. 4-1 Hungary's readiness for the Information Society

Domain (1 digit) and field (2 digits)	Readiness
1. Network access	**78%**
1.1. Speed and quality	85%
1.2. Service and support	80%
1.3. Internet availability	80%
1.4. Hardware and software	85%
1.5. Information infrastructure	80%
1.6. Internet affordability	60%
2. Networked learning	**70%**
2.1. Schools' access to ICTs	75%
2.2. Enhancing education with ICTs	65%
2.3. Developing the ICT workforce	70%
3. Networked society	**74%**
3.1. People and organizations online	70%
3.2. Locally relevant content	80%
3.3. ICTs in everyday life	75%
3.4. ICTs in the workplace	70%
4. Networked economy	**60%**
4.1. ICT related employment opportunities	70%
4.2. B2C (business-to-consumer)	60%
4.3. B2B (business-to-business)	50%
5. Networked policy	**65%**
5.1. Electronic government	60%
5.2. Telecommunications regulation	65%
5.3. ICT related trade policy (VAT and customs)	70%

According to this research, the country possesses better fundamentals concerning network access than in any other domains. The problem here is that Internet access for the time being is costly and the infrastructure background is not provided for everyone either. Compared to the five domains, Hungary's readiness to networked learning is slightly above the medium. The indicator measuring the society's electronic networking is relatively good. The range of local content

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produced in Hungarian language is limited. Among the investigated domains the most weakly performing field is the networked economy. The ICT service and production sector is slowed down by the partial constraint on the telecommunications market due to the effective monopoly of the incumbent telecommunication company (MATAV), which is aggravated by the fact that fiscal burdens (e.g. VAT) raise the price of computers to a substantial extent.

A relatively recent publication of *Eurostat* [see Deiss 2000] provides a wide range of internationally comparable indicators to describe ICT development in the candidate countries, in particular in Hungary.

- While in 1990 there were only 100.000 PCs in the country, the number of them in 2000 is 870.000.
- If we calculate with this numbers per 1000 people, in 1990 on average 1.0 while in 2000 8.7 people owned a PC.
- At the same time PC usage is mainly limited to business purposes, the proportion here is 30:70.
- The number of Internet hosts from the number of 89,3 in July 1998 has increased to 138 in 2000.
- The number of Internet users in the same period has moved from 400.000 to 715.000, which means from 3.9 to 7.1 per 100 inhabitants.
- In the mobile telephony sector Hungary has reached an enourmous development, even compared with the other candidate countries: in 1995 only 265.000 people had a mobile phone while in 2000 already 3.000.000 people have one. For 100 people the growth is from 2.6 to 29.9.
- Expenses on information technology are rather substantial in Hungary: only the Czech Republic has bigger expenses, although Slovenia spends more in real terms, but less in terms of GDP percentage.

Awareness of entrepreneurial interest groups and the NGO sphere
The entrepreneurial and civil sphere is very sensitive to the dissemination pace, range, methods and measures of Information Society. The respective policy of the Government is influenced by the opinions and recommendations of various trade associations, civil groups and professional associations such as the associations of local governments, schools, etc. The informatisation of various aspects of economic and social life has generated a wide ranging debate.

In April 2000 a conglomerate of entrepreneurial groups and think tanks have published an influential policy document with the view of formulating strategy principles and implementation recommendations for the Government on the development of the Information Society [IVSZ].

The Hungarian programme of the "e-Europe - Information Society for everybody" is also called "e-Hungary" urges the Government to accelerate its activities of EU adaptation in the field of ICT development, usage, support policies and legislation. The EU programme "e-Europe" is presented as a necessary blueprint to follow for Hungary, the authors state that immediate accession to the "e-Europe" programme is a question of existence for the Hungarian economy and society.

The document urges a more concerted and dynamic development in the following fields:
- Promote the entrance of the youth into the digital age
- Provide cheap Internet access
- Accelerate the diffusion of electronic commerce
- Promote fast Internet access for researchers and students
- Promote the application of intelligent cards in the modern information systems

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- Develop the legal and institutional framework of venture capital for the high-tech small and medium size enterprises
- Widen the opportunity of "Electronic participation" for disabled and people with disadvantages
- Promote the application of on-line health services
- Develop "intelligent" transportation and freight-forwarding
- Develop on-line government

In November 2002 a group of directors of large Hungarian companies, most of them subsidiaries of multinationals, has participated on a conference devoted to Information Society in Balatonaliga. The conference has been closed by issuing a document of recommendations for the Government. The document bears the name "e-Hungary". [EHUNGARY]

The document points out that while the development of the ICT sector and markets in Hungary is unquestionable, the country's readiness for the Information Society varies strongly according to which domain is investigated, both regarding sectors and geographical location. Mobile telephony is a sub-sector of telecommunication which has performed prominently, while Internet usage at home and in the schools lags behind. Some big Hungarian cities stand out in information development, but smaller villages and especially the North-Eastern region of the country are at the same time unable to keep up.

This uneven pattern of development points out the need for a concerted and conscious information technology development with a strategy accepted in political, social and economic consensus as its foundation. The starting points for this are as follows:
- assessment of the country's readiness for the Information Society
- creation of a value-based vision that provides the guidelines,
- recognition and approval of strategic priorities alongside these,

attaching tools, sources and responsible leaders to tasks,
and finally, determining the line of work and the supervisory checkpoints.
The document stresses that a co-ordinated effort is needed to enhance informatics infrastructure and content development, whereby best international practices should be introduced.

A selection of specific recommendations of the above mentioned document follows.
- *E-Government*. The Government has to show a good example by introducing a wide range of ICT applications. The Government should nominate an institution in charge of e-Government, which should also be in charge of public procurement of compatible ICT devices and infrastructures. Attitudes of public servants should be monitored and developed in order to meet the challenges of Information Society. A unified, co-ordinated approach to e-Government should be developed with special respect to local government informatisation. The concept should harmonize and standardise the infrastructures, the data bases, the access issues, administrative processes, PR activities, motivation structure and unified Government financing principles. This should replace the present bottom-up development of e-Government in the country. A full assessment of the info-communication situation of local governments should be made. Widespread use of e-Government applications developed by private firms should be facilitated. Simplifications in administrative procedures are needed in order to make electronic administration more effective. Smaller local governments should be motivated to team up in ICT development projects.
- *E-Business.* Resources devoted to info-communication politics have to be concentrated for increasing national competitiveness, much less to direct subsidy actions offering free infrastructure for a limited group of beneficiaries. SME development for Information Society has to rely on Chambers of Commerce' and other interest representation bodies. Business to Government electronic interactions have to be intensified. Trust in electronic interactions has to

DATABANK CONSULTING

be developed by widening the range of Business to Government and Business to Population connections such as the electronic filing of tax returns. A true liberalization is needed on the telecommunication market.

- *Education.* Education policy should be re-designed by taking into consideration the usage of electronic media by wide strata of the population. The contemporary ICT training of a wide stratum of the population should be aimed at increasing the competitiveness of the Hungarian workforce.
- *Regional policy.* The Government should launch programmes to limit the differential between leading and lagging ICT regions.
- *Legislation.* The existing digital subscription law should be made simpler and more practical. An electronic archiving law should be issued. The informatics standards of the EU should be taken over as soon as possible.

4.3. Commitment to introduce e-services

e-Business

The National Development Plan states that e-Commerce is an important priority for the development of the country, which serves the further opening up of the Hungarian economy . The influential Government document attaches substantial resources to the development of the relevant software, multimedia channels, contents and data bases.

Electronic commerce develops in Hungary with a rather slow pace. In 2000 only 8% of the Hungarian Internet users have purchased products or services through the Internet. A survey made in December 2002 states that in 2002 only 6 per cent of Internet users have purchased products or services online. [GKIWEB] Another economic research institute states that this proportion is only 3%. This lags behind the EU average (36 %). Due to costly delivery , electronic purchasing of goods is not cheaper in Hungary if compares with traditional purchase methods. Despite of this fact, vendors are optimistic and continue investing into portals.

Research has provided some information about the problems and deficiencies that inhibit the diffusion of e-Commerce. Some of these problems stem from the lack of trust in electronic commerce, and especially in electronic payment. A wide segment of would-be buyers in the Business to Consumer relation do not believe in the seriousness of web based advertisements and commercial services. Other problems stem from the lack of know how, the poor usage of tools and the lack of the culture of online commerce. In order to prevent such issues, the Hungarian Government has acted to approve laws clarifying the conditions of e-Commerce.

A wide range of Hungarian trade companies is capable to organise the delivery of its products to client / buyer households. However, the most developed field is the Internet based commerce of online digital products such as banking service or software.

DATABANK CONSULTING

On the other hand, companies offering non-digital products have to invest into costly information campaigns, complicated delivery logistics and development of administrative procedures to serve the individual needs of clients (customisation). In the recent phase of development of Hungarian e-Commerce web pages serve mostly as marketing communication devices. According to a survey conducted by GFK Market Research Inc. half of the companies use online media for advertisement. [GFK] In Spring 2002 decision makers of altogether 138 medium sized and large companies were asked on marketing communication. Typically 2 to 5 percent of marketing communication costs are spent for Internet advertisement. This proportion is has a growing tendency. 89 % of the investigated companies has its own website. Half of these websites are operated since 3 years or more. One eighth these websites are as young as one year. The most important target group of the websites is the client (buyer), but one tenth of the websites targets the subcontractors and a similar proportion targets future employees. The production of most of these websites is outsourced, but operation / maintenance / updating is a predominantly in-house activity. Online marketing campaigns and market research surveys have a growing tendency, typically also outsourced to specialist firms.

Electronic banking is well developed in the country with a wide range of ATM machines, POS terminals, tele-bank services. All banks have developed a more or less functioning integrated business software. Hungarian Internet banking has begun with the relevant development of Inter Europa Bank in 1997 which has been followed by the market leader OTP Bank (1999), Raiffeisen Bank (1999), Citibank (2000), and CIB (2001). Target group is the private persons (home banking) and SMEs. This development is still in the beginning phase and prevailing form of the service of bank clients is still the ATM machine and the personal contact in the office of the banks.

Among the individual banks, OTP Bank has the largest number of electronic clients: at the beginning of 2001 more than 60,000 registered users. Citibank follows with a narrower but better equipped and richer segment of users (12,000 users). Inter-Európa Bank has 4 thousand, Raiffeisen Bank has 2-3 thousand Internet connected clients.

The following banking products are offered online:
- Information provision
- Account information
- Rates of exchange
- Information on the services provided by ATMs and bank offices
- Downloading forms for new credits or new card
- Transfers
- Deposits
- Purchase of bonds and investment fund shares

In May 2002 altogether 151 thousand people have used electronic banking. Telephone based bank services were used by 310 thousand persons. Internet banking services are predominantly used by graduated, urban adults under 39 years; with two-third of users being male.

Electronic marketplaces have not been extensively used in Hungary. In 2000 a group of significant Hungary based multinational companies - such as HP, Oracle, Pricewaterhouse-Coopers - have established FHEM (First Hungarian E-market). The portal has not been successful. Another marketplace, established by another group (Axelero, SAP, Compaq, Accenture, and Marketline Inc. , a subsidiary of OTP Bank) has survived and made a turnover of 2 billion HUF in 2001. Its central catalogue offers several tens of thousands of articles.

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Legal provisions. One of the most important regulations governing electronic commerce is the consumer protection regulation 17/1999 (II.5) Government Decree. It states the contractual rights and duties of commercial partners when they are not establishing personal relationship, and make their deal through a medium. However, consumer protection authorities controlling distance commerce have established that electronic traders generally do not conform to the provisions of this decree.

Law *CVII* of *2001 defines* electronic commercial services, including telecommunication services serving the needs of Information Society. It conforms to the principles of the Single Market by eliminating important differences between local and EU-based vendors. The Law explicitly states that it intends to implement the Directive 2000/31/ of the EU Parliament and Council on Information Society and e-Commerce.

e-Government

The National Development Plan of 2002 attaches a very high priority to the development of service state, and within that, to electronic public administration, in particular electronic services offered by local governments.

Several ministries and the Prime Minister's Office as well, participate in various ICT development initiatives. The most important developments are co-ordinated by special inter-ministerial committees hosted by the responsible Government agency. An example for such an important line of development is the co-ordination of the utilization of various data bases that are being continuously created during the administrative processes in the public administration.

In Hungary there are approximately 15 thousand publicly financed institutions. The Hungarian Info-communication Report issued by the market research agency Bell Research Ltd. estimates that, in 2001, these organisations have spent some 50 to 60 billion HUF on informatics purposes. [HUINFOCO] Central agencies of the Government (such as ministries) are big buyers of info-communication products and services: these organisations have spent in 2001 some 20 to 25 billion HUF on such purposes. (1 Euro=250 HUF in January 2002.) Expenses of the local government segment can be estimated to reach 10 billion HUF. Expenses of the health and social segment can be estimated to reach 6 to 7 billion HUF in that year.

Three-quarter of these developments were financed from own resources of these organisations, and the rest was financed by other sources, such as supervisory bodies, tenders, foreign aid, donations, etc. The financing mechanism of these developments has typically a multi-channel character: funds from the central budget, the local budgets, sectorally appropriated funds, the social security budget and some special project related funds are combined to cover the necessary expenses.

An international survey conducted by the market research company Taylor Nelson Sofres (TNS) in 2001 has revealed the similarities and differences between 31 countries regarding electronic case processing by government agencies. [TNS] While in the Scandinavian countries more than half of the population uses the Internet for the purposes of communicating with Government agencies, in Central Europe and in particular in Hungary only one-sixth of the population is served by these services. This survey has estimated that in 2001 some 13 per cent of the Hungarian population has been using the Internet, and some 16 per cent of the Internet user population has used e-Government services. This is close to the average indicators of Central Europe, but it is noteworthy that the respective indicators of Internet and e-Government usage, and moreover the pace of this development is much better in the Czech Republic.

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In 2002 the Hungarian market research company Netsurvey Ltd. conducted a survey in the public administration institutions in Budapest, 4 county seat towns and 4 other towns with more than 20,000 inhabitants. The result was that in the preceding few years the development of informatics in these organisations was very dynamic. These institutions have acquired a wide range of the necessary computers and software, and partly as a consequence of that, the information flow within these organisations was satisfactory. In particular, local governments use the Internet mainly for the purposes of tender watching and for quickly obtaining important documents issued by central organisations.

The researchers have extended their investigation to four sub-sectors of public administration:
- local government administration,
- health,
- education, and
- culture.

A selection of the main findings follows.

Within the public administration online case administration and the maintenance of online contacts between offices and citizens is still at a nascent, under-developed state. The interviewed public servants have expressed the opinion that the development of electronic administrative case processing must be preceded by
- explicit needs, demand on the side of the citizens
- readiness of the population,
- and infrastructure development.
On the other hand, public servants are strongly motivated to Internet usage by the fact that certain important documents can be reached only via Internet.

Among the investigated sub-sectors a comparison has been made with the following results:
- Electronic health care has been found to be not very advanced, due to under-financing and lack of central strategy.
- Education institutions are relatively well developed form the point of view of how they are equipped with ICT products and services, moreover it is here that the most advanced info-communication attitudes prevail among the investigated four sub-sectors. All this is attributable to the fact that the Government programme "Sulinet" has opened an easy Internet access to a wide segment of teachers and students.
- Decision makers of cultural institutions are relatively the most open for the wide ranging usage of ICT products and services. Some of these organisations use the Internet in an innovative way to reach their target groups.

For local governments in the countryside, Internet access has a much higher priority than the development and maintenance of their own website. These organisations usually have only a rather vague concept on what kind of information should be presented on their websites. These institutions are very price-sensitive: smaller localities can devote a sum between 200 thousand HUF and 1 million HUF to this purpose (1 Euro=250 HUF in January 2003). The most typical source to develop these websites is the participation on specific, mostly Government financed tenders devoted to local development, including content development. In many settlements local know how is still missing for developing and updating such websites. Most of the websites of local governments are not interactive, just presenting some rarely updated information on the settlement. On the other hand, in some better developed localities the permit forms can be downloaded from the website, and even the Mayor is available for an electronically organised chat in certain pre-determined hours.

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An important legislative step towards secure Citizen to Government connections, towards electronic case processing is the acceptance of the Law on Electronic Signature by the Hungarian Parliament. This law regulates the following domains:

- Scope of usage of electronic signature
- Rules of services related to electronic signature
- Rules of government agencies monitoring the services related to electronic signature

In Hungary the most widespread method of electronic signature is the so called PKI - Public Key Infrastructure method. The Law differentiates between 3 types of electronic signatures:

- simple electronic signature
- electronic signature with enhanced security
- and the so called qualified electronic signature.

The three types represent a growing level of security and the Law regulates the scope of acceptance according to the level of security. Documents accompanied by qualified electronic signature have the legal status equal to paper documents.

The Law regulates also the institutional framework of electronic signature provision services. It stipulates that

- the notification of electronic signature providing bodies and
- the permission of electronic signature providing technologies

is under the responsibility of a Government agency (Commission of Telecommunication).

As a result of the development of electronic signature, a dynamically growing number of tax returns have been filed to tax authorities by companies. In particular, the website of the local government of the capital Budapest offers a feature which enables local companies to file the tax returns regarding local enterprise tax electronically.

Since Fall 2002 the biggest companies of the county Pest are able to file tax returns regarding company profit tax in a similar way. This costly investment (a system under the pseudonym ABDA) had a price of 300 to 350 million HUF (1 Euro=250 HUF in January 2003), a development financed by the State Tax Office.

A similar development regarding the electronic filing of personal income tax returns has still not occurred in the domestic sector. This is partly attributable to the missing trust in electronic data transfer. About one half of the Hungarian population has the opinion that it is insecure to transfer personal data such as a bank account number or card number via Internet or other electronic media.

e-Health care

Hungarian health care is a traditionally under-financed public system. The financial reform of the social security system and a deep organisational reform of the institutions of health care are on the agenda of all consecutive governments of Hungary since the political changes of 1989.

The ongoing activity and the development of its institutions   - hospitals, outpatient stations and general practitioners -   are jointly financed by the Social Security Fund, local governments, projects of the central Government and directly by the public. Hungarian general practitioners (house doctors or "haziorvosok") operate their praxis in an entrepreneurial legal framework, whereby the income stems from the Social Security Fund and is approximately proportional with the number of patients who have chosen the general practitioner. This choice is free by legislation.

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As preceding strategy documents, the National Development Plan of 2002 (NFT) also stresses the importance of the modernisation of electronic health care. It states that the efficient operation of the health care system requires the use of opportunities provided by information systems. Currently there is no systematic connection between the service providers, data is missing and incompatible. There is the need for an integrated sectoral system, in terms of communication, guidelines, protocols, central case studies and registration. The Plan attaches substantial resources to the development of electronic health care in Hungary.

The development of the computer systems of hospitals and outpatient stations ("rendelointezetek") began in the 70s by a series of weakly co-ordinated local developments. Today many health care institutions, e.g. hospitals and clinics possess an isolated, but integrated information processing system. The offer is wide, since within the Hungarian software producing and informatics system integrating sector, a wide range of providers of health care application systems has evolved. The core of these systems is the data base consisting of the files of the patients. Some of these systems are run by the Informatics Departments of these institutions, other systems are outsourced, i.e. they have been developed and maintained by subcontractor companies.

Outpatient health centres run by local governments have only recently introduced integrated software systems. But in many of these institutions the files of the individual dispatched patients still have to be carried by nurses to the special departments. It is to be noted that hospitals, clinics and outpatient stations have to cope with a continuous shortage of nurse manpower - due to chronic underpayment of medical personnel.

A survey made in 2001 by GKI Economic Research Inc. has revealed that while all of the Hungarian outpatient centres possess and operate computer systems, only three-quarters of them are able to systematically lead the medical history of the patients by a suitable software system. [GKI]

Additionally - although the pace of technical development of Hungarian health care institutions is slow - since the 70s a growing number and an ever wider selection of specific medical devices is connected to a digital computer.

This background is important for the interpretation of the appearance and usage of the Internet in Hungarian health care institutions.

A survey conducted in 2001 by GKI Economic Research Inc., Westel Mobile Communication Inc. and Sun Microsystems Hungary Ltd. on hospitals, outpatient stations, general practitioners and other health care institutions has revealed the following facts. [GKI]

In September 2002 nine-tenths of hospitals and one-third of outpatient stations had an Internet access. Electronic communication between different institutions - e.g. between the laboratory attached to an outpatient station and a general practitioner - is the exception rather the rule. Employees of hospitals and outpatient centres mainly use the Internet for searching for professional information, developing contacts with Hungarian and foreign clinics and scientific centres and libraries.

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About one-quarter of the general practitioners are able to access the Internet from their cabinet, and some 4 per cent of the general practitioners operate their own website. General practitioners operating their own websites use this facility to spread medical information and consultancy. According to the survey the development of Internet access and webpage creation among general practitioners has a very positive tendency: in 2003 the respective indicators are expected to be doubled. For this professional segment the quickly provided patient-specific information offered by local outpatient centres is very important. Such information can help to formulate much needed early diagnoses.

Local outpatient centres with Internet access are searching for the following information:
• social security rules
• laws, decrees and other regulations
• professional articles
• description of drugs

Moreover, local outpatient centres with Internet access regularly make electronic contacts with the Ministry for Health, the Social Security Fund, other hospitals and laboratories. There are no local outpatient centres which operate a service empowering patients to check in via Internet for a medical examination.

There are many Internet based medical applications and contents available, some of them run by private firms, others by education institutes or benevolent organisations. In particular, a wide selection of medical journals, consultancy websites, product related sites with more or less open and covert advertisement purposes, and special, illness-related applications (e.g. high blood pressure related sites) are available in Hungarian language. These web pages compared to similar international sites are less interactive but they still represent a promising segment of the local Internet market. It is noteworthy that the possibility of online purchase of any type of medical drug is still missing.

There is a wide selection of Government sponsored tenders in order to disseminate digitally based devices, methods and activities in the field of e-Health care.
• There are regularly repeated Government tenders with the aim of providing direct support for doctors, nurses, social care workers and others in the form of granting for them PCs, Internet access or ISDN connection cheaply or for free. In some cases the co-financing of the tenders by private companies is available.
• A tender issued by the Ministry of Children, Youth and Sports in 2002 invites applicants to participate in the activity of e-Health information dissemination. Applicants are invited to create web pages in the campaign aimed at drug prevention.

E-Health care is also promoted by various professional organisations such as the Hungarian Foundation for Medical Informatics and the Hungarian Society for Medical Informatics.

4.4.   Main policies in support of the development of ICT networks and high-speed infrastructure in Hungary

Privatisation, liberalisation and ICT platform development
Ever since the political changes of 1989 the central issue of telecommunication development was the privatisation of the incumbent telecommunication company (Matáv Inc.) and later the liberalisation of the telecommunication market.

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The privatisation of this big company (one of the biggest in the country) took place in various stages. Today the majority shareholder is the German telecommunication multinational company Deutsche Telecom.

In Hungary the central issue of liberalization is the question: how to create competition on this almost monopolistic market, where the majority of the fixed telephone lines, mobile telephone subscribers and Internet services is still in the hand of Matáv Inc. This company is the owner of 100% of the shares of Westel Inc., which is the biggest mobile service provider in Hungary serving the majority of Hungary's almost 6 million mobile telephone subscribers.

During the first wave of liberalisation the concession regarding fixed telephone lines was sold by bidding method to various, mostly foreign investors. The country was divided into areas, each area being served by one single telephone company, whereby a minority territory of Hungary became to be served by the competitors of Matáv.

In the same time the market of commercial telecommunication services - where the majority of clients was in the corporate sector - became fully liberalised, and a set of smaller competitive telecommunication companies developed to serve this segment, whereby most - but not all - of them have invested the capital provided by foreign investors.

At the end of the nineties a half-hearted stage of liberalisation of voice services took place, whereby free access of the networks of Matáv was granted to the newly emerging competitive telecommunication service provider companies. However, this regulation was inconsequent regarding the interconnection fees between telecommunication provider companies. As a result, voice telecommunication fees are still increasing in Hungary, partly due to the intensive lobbying efforts of the incumbent Matáv Inc. In 2002 most of the fixed telephone subscribers has not heard of free choice of voice service providers, and only 7600 subscribers has exercised this recently acquired right.

In the same time the Internet provision market has developed in a competitive way, whereby several dozens of recently founded Internet provision companies serve the needs of the public. However, since most of the Internet traffic occurs on the platform of dial-up lines, the monopoly position of the incumbent telecom company has kept Internet access prices artificially high. TV channels are still not extensively used for Internet provision. Recently, in the last few years ADSL technology has spread dynamically among Internet users, whereby the majority of clients is from the corporate sector, and the majority of ADSL connections is provided - either directly, or indirectly via leased lines - by Matáv Inc.

To sum it up government policies to generate competition on these markets have failed.

Fixed and mobile telephone lines and related applications

Great changes have occurred in the field of telecommunication. As of voice communication, whereas the four decades of socialism were characterised by a constant lack of fixed household telephone lines, this lack of uptake quickly disappeared after the emergence of market economy at the beginning of the 90's. In Hungary today telephone density is somewhat less than in the EU (77% vs. 86%) , which means that the provision with fixed telephone lines equals the provision of the other Candidate countries.

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Tab. 4-2 Fixed telephone line access development in Hungary
 (31 December 1999, 2000, 2001)

Item	1999	2000	2001
Number of telephone main lines, including the service lines of the operator. Not including ISDN channels ('000)	3 609	3 479	3 258
Of which: residential	3 089	3 014	2 827
• business	453	398	365
• public	43	44	44
Number of mobile radio telephones ('000)	1 620	3 076	4 967
Number of telephone calls (Million)	4 250	4 191	3 921
Of which: local	2 358	2 204	2 023
• inland distance	1 807	1 907	1 832
• international	85	80	67

Source: HCSO

During the 90s a surprisingly dynamic spreading of mobile telephone usage has challenged the position of fixed line telephony. At the end of 2002 two out of three households owned a mobile telephone.

According to the report of the Hungarian Telecommunication Authority at the end of 2002 the number of actively used SIM cards has approached 6.6 millions.

Among the candidate countries the densest mobile network has emerged in Slovenia, followed by Cyprus and Hungary. The mobile telephone market in Hungary can be regarded as saturated.   In the same time a vivid price-, quality- and portfolio competition has developed between the mobile providers: the market leader Westel Inc, the closely following Pannon GSM Ltd., and the relative newcomer Vodafone Inc. The mobile market has penetrated new cohorses: today most of the newly acquired sets are owned by adolescents or elderly people.

Use of the protocols WAP, GPRS, MMS. All of the mobile provider companies offer GPRS services with Internet access and MMS service (picture transfer). According to the survey conducted in October 2000 in the age group of 14-60 years old, 334,000 mobile phones were used at least once a month for WAP function.. It means that 7,4 per cent of mobile telephone users in this age group use WAP. Thus, in 2000, Hungary has exceeded the Western European average in WAP usage. As of GPRS protocol usage, in the same age group there were 310,000 mobile phones capable for GPRS processing, although only 70 thousand people uses the GPRS protocol for data communication.

Internet penetration and its constraints

Various academic research sites, the official Government statistics and market research institutions have developed a wide set of indicators to measure Internet penetration in the country. It is more or less agreed, that in 2002 about 13% of the population uses Internet, most of them having an access at the working place, not at home. In 2000 the development pace of household Internet usage has accelerated. The social and demographic composition of Internet users differs significantly from the composition of the general population. This is a clear consequence of the fact that the Internet penetration in Hungary is still rather low.

 DATABANK CONSULTING

According to a 2002 comparative study made by the market research firm Taylor Nelson Sofres Ltd. (TNS) Hungary belongs to the countries lagging behind in Internet usage, even within the Central European Region. [GLOBALEC] This market research firm has also launched a survey among 19,000 people over 15 years. [INTERBUS]The aim of this study - and of several others - was to reveal the reasons of the slow pace of spreading of Internet usage.

There are two serious limits of household Internet usage: according to unanimous results of various surveys only one fifth of the 3,8 million Hungarian households has a PC, and approximately one third of the machines is not suitable for establishing an Internet connection. In 2000 one fifth of the household-owned PCs which were older than 6 years old, and only one third of the household-owned PCs was younger than 2 years old. More than one third of household-owned PCs were purchased as a second hand product.

The other limit to Internet penetration is the high monthly cost of Internet usage. For the average household this cost is monthly between 8,000 and 10,000 Ft, most of this cost being telephone usage generated by dial-up connections. Market research has shown that the average Hungarian household deems approximately half of this cost as acceptable.

The composition of the Internet using population

Due to factors mentioned above Internet usage is much more widespread in the medium and high income categories. However other factors also influence the readiness of households to install Internet-connected PCs at home. The most important factor is whether the family has children or not. Internet access is financed by many parents solely for the purpose of helping the education of their children. Within this group those families which have children with higher level education prospects, have a higher tendency to own Internet-connected PCs.

In the year 2000 the dominant place of Internet access was still the working place and the school. [KOD] Already 84% of frequent Internet users owns a PC at home, which means that the Internet does not generate a huge demand on computers. There are 630.000 adults in Hungary who use the Internet at least twice a week. Two-fifth of them uses dial-up modem, a smaller group uses cable TV, and even less people use ADSL , ISDN, leased line and mobile telephone access.

Access to broadband Internet

Bell Research Ltd. and Siemens Hungary Ltd. have conducted a joint investigation on broadband Internet access among the Internet using population at the end of the first quarter of 2002. [BELLSIE] Currently Hungary can still be characterized by the traditional Internet usage. 68% of people using the Internet from home has an analogue modem connection while only 4% has ADSL technology, 8% has cable television connection and another 20% uses the Internet through ISDN line (mostly due to the promotional activity of the dominant and market leader Matáv).

The technologies such as ADSL and cable television data transfer were only used by one eighth of the people interviewed. About half (48%) of those using the Internet through an analogue or an ISDN line have reported that they were interested in such an opportunity, among those 28% would be certainly interested while 20% only possibly interested.

DATABANK CONSULTING

The main purpose of people using the Internet from home is information gathering and access to databases, different from the overseas tendency, where leisure and pleasure type of usage dominates. In Hungary most of the 31-40 age group can be characterized with this type of "conservative" type of usage. One quarter of home based Internet users purely communicates for the sake of communication on the net (on-line community) while only 22% has entertainment with the help of the Internet.

4.4.1.   Bibliography

1)   [BELL] Report of Bell Research Ltd. (www.bellresearch.hu)
2)   [BELLSIE] "Potential of the applications built on the broadband Internet access". Quoted in Figyelõ Trend 2002 December pp.18-20
3)   [CAND] "eEurope+". Study presented to the meeting of the EU candidate countries in Slovenia, June 2002. Survey presented to the meeting of EU candidate countries in Slovenia in 2002. Study downloaded from the Government site www.ekormanyzat.hu
4)   [EHUNGARY] Document issued by the Balatonaliga Conference, 2002.
5)   [EKORMANYZAT] Website of the Government Informatics and Social Relations Office (Kormányzati Informatikai és Társadalmi Kapcsolatok Hivatala) (www.ekormanyzat.hu)
6)   [Deiss 2000] Richard Deiss: Rapid growth of Internet and mobile phone usage in Candidate Countries in 2000. Downloaded from the website of Eurostat.
7)   [GFK] Report of the GFK Market Research Inc (www.gfk.hu)
8)   [GKI] Report of GKI Gazdaságkutató Rt. (www.gki.hu)
9)   [GKIWEB] Survey conducted by GKI Inc., Webigen Inc., Sun Microsystems Hungary. Quoted in "Kalauz az Internethez". In: Háló - A supplement of the periodical HVG. 2002. December.
10) [GLOBALEC] Global e-Commerce Report. Survey report by TNS Taylor Nelson Sofres Ltd. Downloaded from www.szt.hu
11) [HUINFOCO] Hungarian Infocommunikation Report. Produced by Bell Research Ltd. and Think Consulting Ltd. Quoted on the website www.index.hu (2002. szeptember 12.)
12) [HCSO] Hungarian Central Statistical Office, http://www.ksh.hu/pls/ksh/docs/index_eng.html
13) [IHM] Website of the Ministry for Informatics and Telecommuniction ·(www.ihm.hu). Information Society policy news downloaded from See http://www.ihm.hu/informacio/hirarchivum/hirek/
14) [IVSZ] e-Europe programme for Hungary. ("e-Europe: Információs társadalom mindenkinek" magyarországi programmeja, 2000. April) www.ivsz.hu/download/doksik/EMagyarorszag.rtf
15) [KOD] Internet penetration study. Research Report of Kód Media Research Ltd. (www.kod.hu
16) [NETS] I-basic 2002. Research report of Netsurvey Ltd. Internetkutató Intézet (www.netsurvey.hu)
17) [NFT] National Development Plan (Nemzeti Fejlesztési Terv) (www.meh.hu)
18) [Pinter 2000] Hungary's Information Society Development – a preliminary study" By R. Pintér. Published by the Information Society and Trend Research Institute (ITTK) Budapest, 2000.
19) [INTERBUS] InterBus. Research report of the market research firm Taylor Nelson Sofres Ltd. Conducted in 2002. (www.modus.hu). News on the results downloaded from www.fn.hu (FigyelõNet) 2002. November 14.

DATABANK CONSULTING

5. Latvia

5.1. Political awareness to information society issues and eEurope in Latvia

A necessity of Information Society development in Latvia was acknowledged by the government in March 1999, when the Cabinet of Ministers accepted the National programme "**Informatics**"[29] [1)]. The fundamental goal of the National programme "Informatics" is to integrate Latvia into the global development process and to form an Information Society in Latvia. It is a complex target programme consisting of 13 subprogrammes and covering the time period 1999-2005. The National programme "Informatics**"** (with supplementary issues introduced in 2000) outlining the Latvian way towards the Information society foresees the realisation of more than 120 individual projects oriented mainly to implementation of information and communication technologies in different areas of society and individual's life as well as wide international co-operation in integration of European data transmission networks and services. The programme's execution basis for the set targets is the realisation of the **universal information service** by ensuring for each member of society a qualitative access to all types of information in compliance with the rights set in the legislative acts. The National programme "Informatics" and eEurope initiative were launched almost simultaneously with the main objectives of Informatics coinciding with those of eEurope but with some differences. In the eEurope action plan the range of interests is wider. Nevertheless, the national programme "Informatics" does not loose its significance since it includes many measures fulfilment of which is absolutely necessary to achieve the targets set in eEurope action plan. In order to control the implementation of National programme Informatics a Co-ordinating board was set up at the Ministry of Transport.

With the emergence of the eEurope initiative, efforts were shifted towards its priorities for the reason that it does not contradict to the statements of National programme Informatics. Today the strategy of formation of Information Society in Latvia is being governed by several documents including the most important - the National Programme Informatics, the Conceptual guidelines of socio-economic programme e-Latvia [3)], the National conception of e-Commerce [5)], the National conception of Internet Development (see [4)]), National conception of e-governance [6)] and the conception of the Improvement of the public procurement system on the basis of information technologies and the Internet [7)]. The Latvian government has accepted all of the listed programmematic documents.

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[29] Available trough the Internet but only in Latvian, a brief summary in English is given in the following chapter

DATABANK CONSULTING

5.2. The national context for the implementation of eEurope in Latvia

The formation of the Information Society is impossible without appropriate development of the ICT sector. The National Board of the Information Society, the Department of Informatics and the Department of Telecommunications at the Ministry of Transport are the main authorities responsible for developing a strategic orientation framework for ICT in Latvia. The following figure shows the co-ordination structure for the ICT sector that exists in Latvia today.

Figure 5-1 ICT authority structure in Latvia
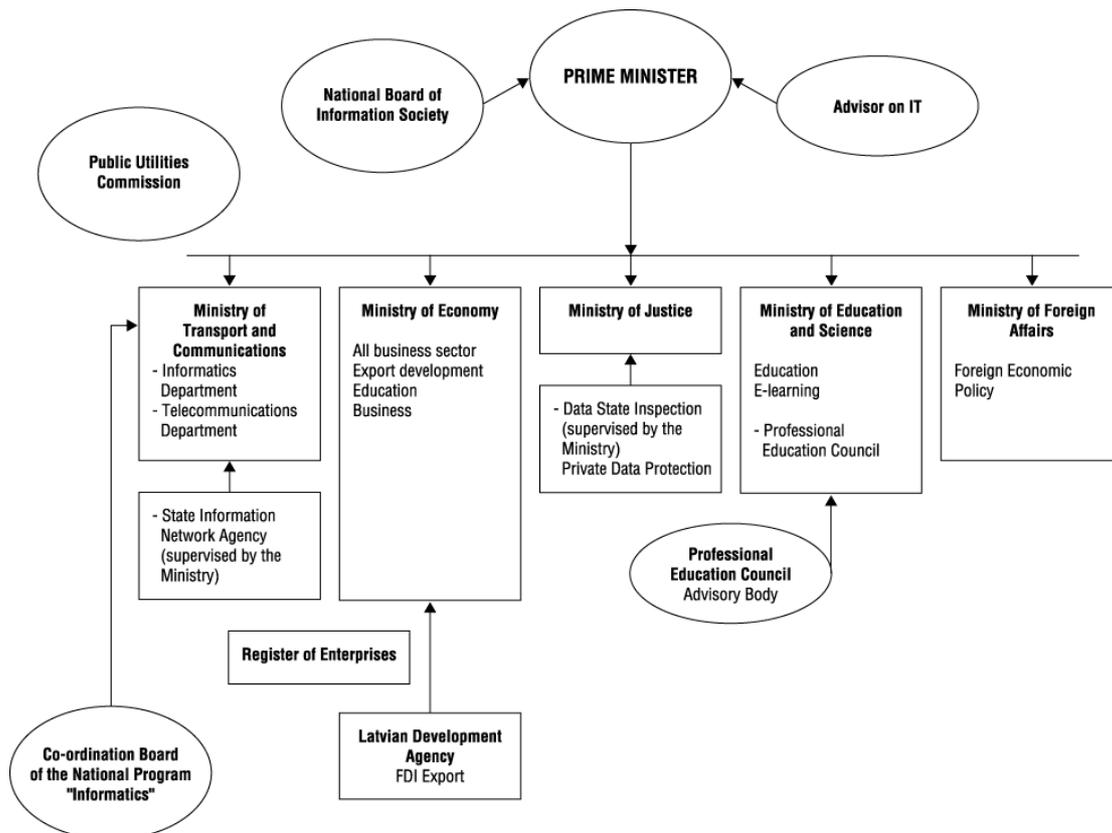
Source: Ministry of Transport, Department of Informatics

Regarding Information Society related issues two authorities must be specially highlighted. These are the Department of Informatics at the Ministry of Transport and the National Board of Information Society at Cabinet of Ministers of Latvia. The Telecommunications department at the Ministry of Transport is responsible mainly for the development of ICT infrastructure.

DATABANK CONSULTING

Department of Informatics at the Ministry of Transport

The main task of the Department of Informatics at the Ministry of Transport (http://www.sam.gov.lv/branches/informatics/character/)[30] is to develop and implement the co-ordinated state policy in informatics based on the National Programme Informatics (Action Plan for years 1999 – 2005) approved by the Cabinet of Ministers on March 30, 1999. In addition this department also maintains relations with European Commission. It has taken the role of a co-ordinator and central info-point, monitoring the progress in every eLatvia action. Responsibility for the planning and implementation of different actions (projects) is distributed among respective ministries (See below).

National Board of Information Society

The National Board of Information Society was established in April 2000 at the Cabinet of Ministers of Latvia, with the Prime Minister of Latvia chairing the Board. The main duties of the Board are to co-ordinate and accept Information Society projects and programmes like eLatvia, eCommerce, e-Government, etc.

Among the members of the National Board of Information Society are representatives from government (Ministers of Economy, Finances, Transport, Education and Culture), Academic sector (National Library, Council of Universities, Council of Science, Council of Professional Education) and business sector (Professional ICT associations, Association of SMEs, Latvian Development Agency).

Co-ordination Board of the National Programme "Informatics"

Co-ordination Board of the National Programme "Informatics" was established in January 1999 at the Ministry of Transport of Latvia. Minister of Transport of Latvia chairs the Board. Among Board members are about 40 professionals, representing public, academic and private sectors. Currently there are 12 representatives from ICT business sector among the Board.

The main functions of the Board are to initiate and evaluate ICT projects and investments in Latvia as well as initiate legislative acts and state standards in the field of ICT.

At the disposal of Latvia's government is its own data transmission network VNDPT (State Significance Data Transmission Network) supervised by the State Information Network Agency (VITA).

State Information Network Agency VITA

The State Information Network Agency VITA (www.vita.gov.lv) is a non-profit State Company providing customers with data networking services all over the territory of Latvia. VITA's network is a closed network, which means that this network's users are state and municipal institutions and organisations, and, in special cases, a limited number of private companies. All state ministries and departments, border control and custom points and offices, police departments as well as state significance registers are VITA customers. VITA participates in e-Government projects and is going to provide a gateway to EU networks (IDA and others). Latvia still is not a member of IDA project though the corresponding activities in this direction are in progress.

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[30] The information is available only in Latvian

DATABANK CONSULTING

Conceptual guidelines of socio-economic programme eLatvia

In response to the eEurope initiative in December 2000 the Cabinet of Ministers accepted the "Conceptual guidelines of socio-economic programme **eLatvia**"[31] [3)]. The programme eLatvia represents the Latvian contribution into eEurope. Analogously to eEurope action plan it is structured along three key objectives:

- a cheaper, faster and secure Internet;
- investing in people and skills;
- stimulate the use of Internet.

The conceptual guidelines were followed by the "Project of socio-economic programme eLatvia Action Plan" which is still under debate in line-ministries (not accepted at the level of Cabinet of Ministers). Consistent with this plan different actions along the three key objectives of eEurope are intended to implement until 2004 including.

The Programme eLatvia includes following main parts and related action plans (source - "Conceptual guidelines of socio-economic programme eLatvia").

General Internet access: cheaper, faster and secure connection

Tasks	Responsible Institution	Deadline
Total digitalisation of the telecommunications network	MT	14.01.2002
Total liberalization of the telecommunications market, opening of the market for leased lines	MT, ME	01.01.2003
Regulation of the Internet segment and services, liability of the service providers for the data security	MT, ME, MJ	01.01.2002
Installation of public Internet terminals in each library, school, municipality	MC, MES, MRDLG	01.01.2004 (gradually)
The insurance of the personal data protection	MJ	01.01.2002

Investing in people and skills (General information literacy and availability)

Tasks	Responsible Ministry	Deadline
Informatization of all Latvian educational establishments, elaboration of methodological materials, training of teachers, installation of technologies, connection to the *Internet*	MES, Local governments	*01.01.2004 (gradually)*
Improvement of the high schools' curricula, information literacy training	MES	01.09.2002
Introduction of the distance learning programmes and services	MES	Non-stop
Opportunities for training and obtaining *European Computer Driving License*	MES	from 01.04.2001
Development of the unified library network	MC	01.01.2004 (gradually)

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[31] A short 9 page document available only in Latvian (http://www.mk.gov.lv/index.php/index.html?id=2363 + selection of respective project). A brief summary in English is given in [2)].

DATABANK CONSULTING

Stimulate the use of Internet (Information services and applications)

Tasks	Responsible Ministry	Deadline
ID card as a universal access tool to the information services	MI	*from 01.07.2001*
Use of electronic documents, their legal status, the electronic signature, encryption, archive of documents	MJ, MC	01.01.2002
Formation of favourable environment for E-Commerce, normative and social problems, consumer protection, intellectual and industrial property etc.	ME	01.01.2002
Development of E-Government, creation of the megasystem, exchange of electronic documents in the all levels of public administration (transactions government – government, government – municipalities)	MT, MJ, MRDLG	01.01.2004 (gradually)
Availability of public sector services in the Internet environment (transactions government-businesses, government-citizens)	MC	01.01.2004 (gradually)
Public sector information portal	MT	01.07.2001

MC- Ministry of Culture, ME- Ministry of Economics, MES- Ministry of Education and Science, MI-Ministry of Interior, MJ- Ministry of Justice, MT- Ministry of Transport, MRDLG-Minister for Regional Development and Local Governments (has no Ministry).

It should be noted that in the Project of socio-economic programme e-Latvia Action Plan, although still not accepted by the government, in addition to the all actions mentioned above several further actions were involved. They are as follows.

Tasks	Responsible Ministry	Deadline
Realisation of universal telecommunication service	ME	*01.01.2003*
Provision of distance learning and telework possibilities for disabled by motion	MW	31.12.2004
Provision of distance learning possibilities for retraining of unemployed	MW	31.12.2004
Education of highest qualification ICT specialists on the bases of scientific research	MES	31.12.2004
Establishment of state's e-procurement system	MF	31.12.2004
Project of tele-Healthcare	MW	01.07.2001
Establishment of an integrated transport information system	MT	01.01.2003
Establishment of a common network of tourist information centres	MEPRD	01.01.2003

MW- Ministry of Welfare, MEPRD- Ministry of Environmental Protection and Regional Development.

DATABANK CONSULTING

Two cyber-town projects of local meaning are not included in the table, however are worth mentioning in regard to this action plan.

5.3.   Commitment to introduce e-services

As it is seen from e-Latvia action plan, it contains actions/projects related to the development of e-Healthcare, e-Education and e-Government.

e-Healthcare

At the moment it seems that the government and healthcare professionals are not sufficiently aware of the possibilities offered by the development of e-Healthcare in all aspects of service provision. The e-Latvia action plan includes an action related to e-Healthcare (see above). The corresponding project is planned to realise on a pilot project basis. Besides in the area of healthcare there are other ICT based applications. Computerised information systems are introduced in hospitals and other healthcare institutions. The Register of hospital fund participants has been developed. The information stored in this register is necessary for the correct distribution of state funding among primary care physicians. Currently, World Bank credit is used to improve the overall situation of healthcare in Latvia. This project includes also the ICT component. The development of a new e-Healthcare information system is in progress. In addition to the registration of hospital fund participants this state significance system foresees also the collection of information on patient's visits to the doctor.

One can conclude that today the electronic applications in healthcare mostly are oriented on needs of service providers but citizen's necessities are rather restricted, although some healthcare information is available on the Internet in Latvian (see, e.g., www.slimokase.lv; www.mfd.lv).

e-Education

In order to implement the objectives of e-Education in Latvia an agreement "On the Latvian Education Informatization System"[32] between the Ministry of Education and Science and the University of Latvia was signed on June 13, 1997 (see www.liis.lv). From that date the LIIS project aimed on wide exploitation of ICT in teaching and learning process at all educational levels is running in Latvia. It is financed mainly from state's budget though other financing sources also are drawn.

The goal of the project is to prepare pupils of primary and secondary schools and students of higher education institutions for life and work in Information Society.

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[32] The Latvian abbreviation of Latvian Education Informatization System is LIIS

DATABANK CONSULTING

The project is developed and co-ordinated by the University of Latvia. It covers the whole grid of ICT applications in education:

- Development of ICT infrastructure in State financed schools and higher education institutions

- Development of education's digital content

- Development of education's management system

- Development of user's training system

- Development of information services

- Development of e-Learning and distance learning.

In fact the project Latvian Education Informatization System is an implementation of actions foreseen in the National programme "Informatics" (see above). It is defined as one of the main priorities of National Programme Informatics. Several eEducation related issues are contained also in the eLatvia action plan.

The following figures best of all characterize the development of ICT infrastructure in schools.

Tab. 5-1 ICT infrastructure development in schools in Latvia

Year Indicator	1997	1998	1999	2000	2001	2002
Pupils per computer	67.3	49.5	39.3	32.3	26.3	25
Internet connectivity of schools	9%	21%	35%	97%	97%	97%
Real use of the Internet					67%	75%

The development of education's content has been among the priorities of LIIS project from its starting point. Within the LIIS project the teaching aids have been developed in the amount equivalent to 81 000 printed pages (data of 2002) (ftp://ftp.liis.lv/macmat).

During 1998 - 2001 various training programmes were designed, updated and implemented for the regional support centres of LIIS[33] where teachers are trained. In 2001 training programmes were tied with the content of the European Computer Driving License (ECDL), but taking into account the specific needs of teachers.

The development of distance learning infrastructure in Latvia occurs according to concept of distance learning accepted by the Cabinet of Ministers and with a support of PHARE programme. The distance learning centres are organised at several leading higher education institutions including the University of Latvia as well as some other places. Within the LIIS project a life long education system for training of schoolteachers in applying IT in their work has been developed (the distance learning course "Basic computer skills" can be mentioned). Besides the education's digital content developed within LIIS project is accessible through Internet. Analogous activities with PHARE support are developed in other places, e.g. in the Riga Technical University (Distance Education study centre) (www.Internet-uni.lv), the Liepaja Teacher Training Academy, the private collage "Turiba". There are some other universities interested in e-Learning – the distance learning study centres in University of Daugavpils, the Latvian University of Agriculture, the Valmieras Augstskola etc.

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[33] Altogether there are 40 such centres in Latvia.

e-Government

The Cabinet of Ministers accepted the conception of e-Governance (www.eparvalde.lv) on August 20, 2002 [6)]. The government agreed that the development of e-Governance is one of its priorities and that some issues from this conception should be included in e-Latvia action plan (See above).

The conception reflects the results of e-Governance development in its first stage – the strategy development stage. The main issues of this conception are as follows:

- Pilot project of Ministry of Finance e-Procurement,
- Pilot project on electronic documents implementation in the commercial warranty system of Enterprise Register,
- Electronic declaration to State Revenue Office (including Customs declarations),
- Development of unified information system for Latvia's libraries,
- Development of Nation portal (In frames of project "Baltic States Government's
- Data Transmission Network" (Latvian abbreviation BVVDPT)) (See www.lvonline.lv),
- Mega-system's project,
- Development of Unified Information System for Local Governments,
- Latvian Education Informatization System.

Regarding e-Government the conception of Public Procurement must be mentioned (see [7)]). It was developed by the Ministry of Economics and foresees the improvement of the public procurement on the basis of implementation of ICT and the Internet.

The State Information Network Agency VITA also participates in the development of eGovernance. It is responsible for the general maintenance of state significance registers, home pages of the line-Ministries (www.mk.gov.lv) and other duties.

There are several state significance registers in Latvia – Population register, Enterprise register, Tax-Payer's Register, Cadastral Register, information system of the Road Traffic Safety Directorate (the Register of Motor Vehicles). The project of Integrated State Significance Information System (Mega-system) deals with a provision of consistent system of state significance registers with a precisely defined responsibility and data collection technology set in legislative acts [9)]. The data stored in some state significance register according its legislative acts are correct since every change in the data due to some event (e.g. marriage, birth, change of address, etc. in case of Population register) is fixed. If these data are necessary in other registers or databases they must be taken from the corresponding state registers where they are correct. Within the Mega-system's project also the Register of registers was worked out. It contains data on Information systems[34] created in Latvia and their respective data models. Access to Register of registers is possible through the national portal (www.lvonline.lv).

The Communication server (developed within BVVDPT project) provides for wide range of users in Latvia and abroad the possibility to receive the necessary information from several data sources (state registers, other databases) accessing only one contact point – the Communication server (one stop agency).

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[34] The list of registers and databases as well as a description of data stored in these systems.

DATABANK CONSULTING

The project of Unified Information System for Latvia's libraries foresees the wide implementation of ICT in libraries and their services. The goal of the project is to provide advanced information services for users including also an order and reception of documents through the Internet. The largest Latvia's libraries are joined into a consortium (www.linc.lv) and provide the common services for their clients. They have OPAC (on-line public access catalogue) catalogues. OPACs have also some other public libraries in Latvia.

From the prospective of development of e-Government "The law on electronic documents" is crucial. This law is adopted by the Parliament on October 31, 2002. According to this law the electronic signature has to become operative not later as on January 1, 2004.

e-Commerce in Latria

The conception of e-Commerce [5)] was developed by the Ministry of Economics and was accepted by the Cabinet of Ministers on March 13, 2001. The conception is a base for the long-term action plan that includes fast and adequate e-Commerce related problem solution using all instruments that are available to the government. On December 18, 2001 the Cabinet of Ministers accepted the e-Commerce action plan that consists of five groups of actions:

- Development of infrastructure. Problems to be solved - basic telecommunication services, standards and electronic finance and bank services,

- The definition of "game's rules". Problems to be solved – protection of consumers rights, taxes, copyrights and the implementation of EU directive 2000/31/EC,

- Formation of trust. Problems to be solved - protection of personal data, cyber crime, electronic signature.

- Maximisation of benefits. Problems to be solved – education, support of SMEs.

- Other actions. Problems to be solved – statistics, telework.

The Ministry of Economics should report the implementation/progress results of the action plan to the government once a year.

A general barrier in the way of e-Commerce development is the threat/presence of cyber crime. Currently, one must conclude that the credit card information is very sensitive data, and that people do not want these data to become publicly known.

Recently the Central statistical bureau (www.csb.lv) has started to collect some statistical data on e-Commerce in Latvia.

DATABANK CONSULTING

National concept on innovation

The Cabinet of Ministers on February 27, 2001 approved the National Concept on Innovation. The concept declares the necessity to facilitate the development of environment favourable for innovative activities in Latvia. In order to enhance the overall level of state's competitiveness it is necessary to implement a purposeful state innovation policy that promotes accelerated development of new knowledge based sectors as well as increase the share of high value added products within the traditional sectors. Ability to generate new ideas and use them commercially is the main force ensuring economic growth. High-tech component has become the main source of competitiveness and value added in all sectors of economy. Based on principles reflected in the National Concept on innovation the National innovation programme is being elaborated. After approval of the National innovation programme in the Cabinet of Ministers the implementation of the action plan suggestions will be started.

The action plan will contain such actions as:

- Support to trans-national technology transfer;

- Development of the capacity of enterprises to adapt new technologies;

- Development and support of innovation support infrastructure (technological parks, centres, business incubators, contacts with universities and research laboratories);

- Support to new technological SME development (start-ups and spin-offs);

- Sub-programme of technology transfer stimulation;

- Development of systems for the purchase and accreditation of new technologies;

- Development and practical implementation of an entrepreneurship oriented curriculum for primary, secondary and tertiary education;

- Creation of environment supportive to innovative actions and the involvement of SMEs producing science intensive production in the implementation of trans-national technology development projects.

A working group in the guidance of the Minister of Education has worked out guidelines for the development of tertiary education, science and technology for 2002 – 2010. It includes the fields of Research & Development and practical application, development of tertiary education and science infrastructure, and improvement in the laws and administrative bodies regulating science and technology implementation actions.

DATABANK CONSULTING

5.4.   Main policies in support of the development of ICT networks and high-speed infrastructure in Latvia

The state policy regarding the development of ICT networks and high-speed infrastructure is reflected in the first part of the eLatvia Action Plan and also in the National Programme for Informatics. The Law on Telecommunications adopted by Parliament in November 2001 ensures the provision of European telecom policy in Latvia after 01.01.2003 (full liberalisation of telecommunication network (See actions above)). It is expected that in conditions of free competition the total digitalisation of fixed telecommunication network will be accelerated and wide inclusion of fibre optic cables will take place. Already among other services Lattelekom (www.lattelekom.lv)[35] offers also broad band Internet connection (some types of xDSL connection), though, altogether the data transmission speed in the majority of cases is insufficient (< 2Mbps). It should be noted that today the barrier for wide Internet penetration in households is high access price (for xDSL $\approx$ 32 EUR) when compared with the average salary in the country ($\approx$ 280 EUR). It is expected that in the conditions of free telecom market there will be a significant reduction of prices.

The Cabinet of Ministers approved the Conception on Internet development in late 2001. The guidelines of this conception are outlined in [4)]. The goal of the conception is to ensure that Internet service providers work under conditions of honest competition and that the government supervises this process properly. The necessary measures for that are the registration of Internet service providers and the establishment of a national supervisory system in the area. There are about 40 Internet providers in Latvia. They are joined in Latvia's Internet association (www.lia.lv).

Mobile communications
There are two mobile telephone networks in Latvia, those of LMT (Latvia's mobile telephone)(www.lmt.lv) and TELE2 (subsidiary of the *Tele2 AB* ("NetCom AB"))(www.tele2.lv). Both operators provide telecommunication services in GSM900 and GSM1800 frequencies and offer the following set of services - voice telephony, SMS, fax transmission, data transmission, Internet, e-mail, WAP. In order to increase the number of players in the telecommunication market and facilitate its liberalisation the bid of three UMTS licenses was organised by the government in 2002. Both mobile operators LMT and TELE2 succeeded in the bid. The third license was not sold and, therefore, the bid must be repeated once more.

Cable TV networks and satellite TV
There are several cable TV providers in Latvia, mostly servicing in capital Riga's population, e.g. Baltkom (www.baltkom.lv). The service is available in the areas with a high density of inhabitants, essentially where it is profitable. The cable TV providers also offer Internet services, of course, only in the places where cable TV network is available. For this the cable modem is necessary. The service offered is on-line connection with rather good parameters (broadband). The barrier for the Internet through the cable TV network is the relatively high service price.
The Internet connection is offered also by some satellite TV providers (e.g. Unisat (www.unisat.lv) in Riga).

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[35] Tthe largest operator of fixed telecommunication services in Latvia.

DATABANK CONSULTING

Regulatory framework

The institutional framework necessary for the development of the telecom sector in Latvia has been evolving and the corresponding regulator has been established [8)]. It is the Public Utilities Commission (PUC) - an independent body and multi sector regulator. The PUC regulates the public services of telecommunications, posts, energy and railways based on the Law on Regulators of Public Services, on statutes as well as strategy and basic principles of operation approved by the PUC Board. Government will also develop and implement the state strategy and policy in the telecommunication sector. The regulator will determine the conditions of operation and would formulate specific policies and rules for implementation of these policies.

5.4.1.   Bibliography

1) National programme "Informatics" 1999—2005, Ministry of Transport, 1998.
2) Towards a knowledge-based economy, Country readiness assessment report, Latvia, United Nations Economic Commission for Europe, Coordinating Unit for Operational Activities, Riga, 2002.
3) Conceptual guidelines of socio-economic programme "e-Latvia", Ministry of Economics, 2000
4) Conception on the organisation of registration and state supervision system of Internet service providers**,** Ministry of Transport, 2000.
5) National conception on e-Commerce, Ministry of Economics of the Republic of Latvia.
6) National conception of e-governance, Ministry of Justice of the Republic of Latvia.
7) Improvement of the public procurement system on the basis of information technologies and the Internet. Conception, Ministry of Economics of the Republic of Latvia.
8) The Law on Regulators of Public Services**,** Saeima of Latvia, 2000.
9) Regulations on creation provision of integrated state significance information system (mega-system).

DATABANK CONSULTING

6.   Lithuania

6.1.   Political awareness to information society issues and eEurope in Lithuania

The first political steps towards the Information Society were made yet in 1991. It is symptomatic that among the first political programmes formulated immediately after the restoration of state independence was -"Lithuania 2000" programme which emphasised importance of building an information infrastructure as the foundation of information society. Later, in 1993, the Government approved a new programme on public communication and informatics, which was revised in 1996 and has been in force until 2000.

An important political and legal prerequisite which made possible Lithuania's future commitment to the principles of *e*Europe is the Constitution of the Republic of Lithuania and other laws, which laid down core principles of a democratic Information Society:
Free access to information. Constitution of the Republic of Lithuania Article 25(5); The Law on the Provision of Information to the Public, 2 July 1996 (No.I-1418, 1996, amended on January 1997) (http://www.lrtv.lt/en_lrtvm.htm); Provision of Information to the Public Act, Amendment of December 2000 *(*http://www.lrtv.lt/en_lrtvm.htm);
Privacy and data protection. Constitution of the Republic of Lithuania Article 22. http://www.litlex.lt/Litlex/Eng/Frames/Laws/Documents/CONSTITU.HTM; Act on Legal Protection of Personal Data (No 63-1479, 1996, amended in 1998) http://www.lrs.lt/cgi-bin/preps2?Condition1=38025&Condition2=; Revision of Act on Legal Protection of Personal Data of the Republic of Lithuania; http://www.is.lt/dsinsp/anglo/index.html

Important political initiatives which strengthened Lithuania's commitment to eEurope were:

- The Memorandum on the Information Society Development was signed by the leaders of the five largest Lithuanian parties and the President of the INFOBALT Association in 1999. The main idea of the Memorandum was to ensure sustainable political support to information society irrespective of changes in Seimas (Parliament) and Government by consolidating views of key political parties on IT strategy. Currently, more than 20 organisations joined the Memorandum.
- The Memorandum Declaration of Rights to the Internet (2000) is a guideline for Internet initiatives in line with eEurope. The main points of the Memorandum are:- the state must ensure the right of every citizen to use cheap and speedy Internet services; the right to the Internet is the best guarantee of success in the new economy (http://www.infobalt.lt).

So, Lithuania was politically prepared for eEurope initiatives and accepted them readily. The Government of the Republic of Lithuania has declared the development of *inclusive* information society a top priority and one of the key factors of a country's well-being. The Long-term Economic Development Strategy of Lithuania, approved in 2001, has proclaimed ambitious goal to make information and communications a dominant economic sector (25% of GDP) by the year 2015. In 2001 the Lithuanian ICT market, the largest among the Baltic States, grew by 11.5 %, compared with 2000 - - according to European IT Observatory 2002. http://www.infobalt.lt/docs/WTO_ITT_PROFILE__LIETUVA__galutinis_darbinis1.doc).

DATABANK CONSULTING

The idea of an "*e*Europe an Information Society for all" have permeated both conceptual and strategic documents on information society and key IT projects. The following political documents and projects serve as a vehicle for the promotion and implementation of *e*Europe principles and initiatives in Lithuania:

- documents of conceptual and strategic nature: White paper on Science and Technology; of Lithuania Conceptual Framework of the National Information Society Development of Lithuania February 2001); Concept of e-Commerce (June 2001); Action plan for the information society of Lithuania for 2001/2004 (August 2001);

- most important IT projects commenced between 2001 and 2002: Customs computerization; Online tax administration system; National ID cards (smart cards); Health Administration Improvement through IT; Networking of banks, financial institutions & bank clearance system; Education & Research Network - knowledge economy; Integration of all National Registers; Land Records and Cadastrial maps; Knowledge Parks and incubation centers; B2B & B2C Commerce – launch of e-banking; Lithuanian Libraries Integral Information System (http://www.ekm.itINVEST/).

6.2.   The national context for the implementation of eEurope in Lithuania

Direct implementation of the e-Europe initiative started in the middle of 2000 across the following priorities (http://www.Irvk.it): competence of the Lithuanian population in IT; computerisation of schools; modernisation of science and education system; promotion of e-Business; establishment of e-Government. The computerisation of schools was one of the most consistent and 'resultant' measures related to implementation of e-Europe. The Ministry of Education and Science drafted a strategy for the implementation of advanced Information Technologies in Education supported by another long-term project: Integration of Lithuania's Academic and Research Computer Network LITNET in the European Academic Network TEN 155 (LITNET-GEANT). In 2001, the government, for the first time ever, specified a special budget line for financing IS development directly from the state budget. http://www.ekm.ltINVEST/

From the standpoint of 'inclusiveness' of information society it is important that the mechanism of implementation of IT Strategy through annual Detailed Action Plans, prepared by Information Society Development Committee under the Government of the Republic of Lithuania is based on consultations with governmental institutions and NGOs (INFOBALT, Chamber of Commerce Association for Small and Medium-Sized Enterprises local governments and municipalities).
Institutional frameworks for the development of information society was tailored to best fit to the implementation of eEurope. In a sense that it is well structured in terms of responsibilities, 'representation' of different actors and contains mechanism of 'follow- up' and 'feed back'. (*see chart1 Development of Information Society in Lithuania*).
The key institutions in the process of the development of information society are:- The Council of Knowledge Society under the office of the President is a consultative body, which provides proposals on state knowledge policy formation and implementation. The Information Society Development Committee of the Seimas is the institution that prepares and discusses legal acts regulating information society issues, conducts the parliamentarian control of state resources usage and investment projects and provides related proposals, etc. The Governmental Information Society Development Commission chaired by the Prime Minister is in charge of co-ordination of IT strategy and programmes. The Information Society Development Committee under the Government of the Republic of Lithuania focuses in its activities on four main problems: population competence, e-Government, e-Business and support to cultural inheritance.

DATABANK CONSULTING

The integral system of state registers is the basis of the information systems of all state institutions. However, generally speaking, integral system of registers is not complete and it should be admitted that the works that have been already carried out in this field do not ensure proper functioning of the state register system. The legal acts provide for the creation of more than 160 different types of registers, but they often do not contain descriptions of the object of registration. In some cases a register is being created and is even functioning without the approved regulations (e.g. Enterprises Register, Road Vehicles Register, Civil Airplanes Register, Medicines Register, Register of Cultural Valuables and Register of Tourism Services). Such databases are called registers, although their management does not meet register related requirements).

6.3. Commitment to introduce e-services

e-Learning

Educational goals of eEurope have been successfully achieved in the field of computerisation of educational institutions at all levels, and with modernisation of curricula; although regional and rural urban disparities in e-Learning infrastructure and opportunities are significant.

In 1996 there was only one computer per 100 secondary school pupils, by 2001 this figure grew to 2.5. The picture is better for pupils from grades 10-12 where there are 10 computers per 100 pupils. In the academic year 2000-2001, 33.9% of secondary schools in Lithuania has access to the Internet. Between 2001 and 2002 there were 8.7 and 7.8 computers per 100 university and college students respectively.
There are two main obstacles to the advancement of IT in education- lack of computer literacy/competence among teachers (particularly in basic and secondary school) and limited access to computers and the Internet. For schools in rural areas and small towns the situation is much worse both in terms of access to computers and computer literacy among teachers. There are only approximately 70% of teachers in rural areas and small towns with higher education (compared to 98% in cities).

Two modern *distance study centres* were established at Vilnius University and the Kaunas University of Technology. The Lithuanian government's investment programme has led to the establishment of 10 distance learning classes in eight cities and towns – Vilnius, Kaunas, Klaipeda, Siauliai, Panevezys, Kedainiai, Utena and Alytus. These are connected to a real-time video conferencing network involving seven universities and three colleges. The main studio is located at the Kaunas Regional Distance Study Centre. The network is compatible with the PHARE network of study centres. Seven distance education courses in the Lithuanian language were developed.

The Lithuanian academic computer network, LITNET, has prepared a project for joining European ATM network. However, lack of financial resources in the area of distance education brakes even development of infrastructure and sustainable modernization of the LITNET network.

DATABANK CONSULTING

e-Business

E-Commerce in Lithuania is presently in the first stage of development. At B2C level e-trade was used mainly for sale of books, computer equipment, mobile communication services and products, banking services and ordering food. There were approximately 10 active and popular e-stores in Lithuania. Among the most popular was www.muge.lt, an e-trade portal run by Omnitel, the largest GSM operator. www.muge.lt offers a wide range of products from CDs to perfume and watches. *www.one.lt*, a pan Baltic portal, marketing pictures and music tones for mobile handsets became popular in a rather short time. www.super.lt and www.patogupirkti.lt the main impediment to the development of e-Commerce is payment as the law on signature authentication is yet to take effect. Lithuanian e-stores work via foreign payment centres, which make the service expensive and diminishes one of the main advantages of purchasing via the Internet. The fear that credit card data are not secure on the Internet is a real deterrent to customers.

It was observed that in 2001 only about 3% of Internet users were regularly shopping on the Internet. Although the number of e-Commerce customers was growing, it remained rather small. It was also revealed that the majority of e-customers were non-resident Lithuanians and the residents living outside Vilnius. In B2B sub-segment one of the most successful e-trade operations was UAB Alnos Biuro Sistemos, which accounted for 4.7% of total e-trade turnover. The company's e-store Office1 is a typical B2B service provider offering all kinds of office equipment, computer parts, software, furniture, paper, etc. Most of its customers were corporations. The six largest distributors of computers also sold through the Net. IT distribution has become the first business sector to be dominated by e-trade B2B services. GNT Lietuva generates around 60 % of its turnover (EUR 54 million) from sales out of its e-warehouse.

E-trade opened up new commercial opportunities for export-oriented enterprises. In particular it empowered small and medium-sized enterprises to participate in international markets. The analysis revealed B2B was flourishing and B2C was in the early development stage. IT distribution had become the first business sector to be dominated by e-trade and business-to-business (B2B) services.

Between 2001 and 2002 Internet banking grew vigorously. More than 25% of Lithuanian companies had started to use e-banking services in the first year of its introduction. Mobile Internet services were also finding applications in the market.

The Internet penetration for companies is increasing rapidly. In 2000, only 48 % of all businesses' computers were connected to the Internet in the beginning of 2002, the figure grew to 65.5%. In 2002, 41.2% of users still use the "Lithuanian Telecom" dial-up service. The leased line connection and xDSL is used by 21.3 % of business users; 17.7 % connected by ISDN, 14.4 % - by radio-waves or microwaves radio connection, and only 5.4 % are using a cable TV line. Lithuanian companies indicate several main problems in the Internet usage. High Internet access costs and slow data transfer are the main obstacles to broader applications of the Internet possibilities in e-Business. So, the eEurope objectives of cheap and fast Internet access and has not been achieved yet. These problems were directly related to the slow liberalisation of telecommunications sector, which has speeded up only since the beginning of this year. The "National e-Commerce strategy: blueprint for action" details the agenda for developing a coordinated response to the e-Commerce challenges in the areas relating to setting targets, the e-vision team, e-Commerce taskforce partnerships, e-Business advisers, e-Commerce awareness, e-Commerce education and training, developing a `hub' website for e-Commerce, supporting the local Internet supply industry, an e-Business accreditation scheme and infrastructure development.

DATABANK CONSULTING

e-Government

Provision of electronic public services is now one of the main activities of e-Government. Lithuanian people usually use e-Government services to obtain information or to perform direct online payments. According to the survey Information technologies in Lithuania, conducted by the Department of statistic in 2002, 97.2% of surveyed institutions (Seimas, Presidents Office, central and local government) were connected to the Internet. However only 50.1% of them had their own web sites, the majority of which were 'concentrated' in central government (65% of central government institution, of which 92% of ministries and 62% of ministerial departments have own websites).

On average, 40% of employees of central and local government institutions use the Internet. (71% in central government and 37% in district administration and 47% in municipalities). In Seimas (Parliament) 75% of MPs and employees use the Internet, while in President's Office only 49%. More than one third of surveyed institutions offered on-line services.

In Lithuania public demand for public services depends more on the general number of the Internet users in the country. This number is still relatively small, compared to the EU countries, the number of potential users of public e-services is not so large (in the middle of 2001, only 5% of Lithuanian people had used e-Government services during last 12 months), despite the fact that the majority of e-services (86 %) are being provided free of charge. Also an important impediment to e-Government as mentioned previously is the unsettled situation with the system of state registers. HYPERLINKHYPERLINK
Public institutions face problems that are often related to the technological obstacles (slow Internet connection, the necessity to update the existing software and hardware, incompatibility of software) and lack of finances and of knowledge.

Participation for all

In Lithuania Internet penetration has been steadily increasing. In mid 2002, 21% of the population used the Internet, a doubling of users from 10% at the end of 2001. In 2002, large telecommunications companies and banks were intending to invest in the establishment of *Public Internet Access Points* (PIAPs), where citizens would be able to use the Internet. In order to enhance citizen interface, a consortium consisting of Lietuvos Telekomas, Omnitel, Hansa LTB and others was set up to provide 65 Public Internet Centres across the country providing access to people in remote areas and of lower income groups. Also, the introduction of flat access rates and broadband services proved to be a positive factor for Lithuanian Internet market development.

One of the major challenges in equal access is to bridge the gap between rural areas and cities. Small towns and rural areas lag far behind cities in access to information technologies. It is important to integrate small towns and villages into the Information Society through multifunctional services, available to all communities.

DATABANK CONSULTING

6.4. Main policies in support of the development of ICT networks and high-speed infrastructure in Lithuania

Fixed networks

Lithuania's telecommunication infrastructure has been steadily improving. Lietuvos Telekomas, the monopoly basic-telephony service-provider, achieved a fixed-line penetration at the end of 2002 approximately 33%. In autumn 2002 mobile communication penetration reached 40% thereby exceeding fixed telephony penetration, which dropped to 31%. By the end of the year cellular penetration is expected to climb to over 45%. Almost two-thirds of the customer base was provided with digital connection. Digitization of the communications network in Vilnius and Kaunas was completed. Lietuvos Telekomas plans to reach a digitalisation ratio of 90% by the end of 2003. Since 1 January 2003, competitive regulatory principles are in place and international services are opened up to international competition in line with eEurope objectives.

Regulatory framework

The basic telecommunications Agreement has been ratified by Seimas. The new amendments to Law on Telecommunications have been adopted in July 2002 to establish the telecommunications regulatory framework in line with the Conventions of the International Telecommunications Union (ITU) and eEurope principles. An independent regulatory body for telecom activities has been established – the Communications Regulatory Authority (CRA) – whose functions include management of the spectrum, standards, licensing, control and monitoring. In line with eEurope objectives, the CRA will initiate secondary laws to provide transparency, competition and fair play amongst operators.

Mobile communications

Increased competition among mobile operators in 2001 resulted in the accelerated growth of mobile service users to 27% of the population at the end of 2002. Omnitel, the largest Lithuanian cellular operator, and the first to offer GPRS is set to become the largest cellular operator in the Baltics. Lithuanians were also among the most active users of SMS services in Europe, which is testimony to the potential of value added services in the country.

Innovation and research policies

The Law on Research and Technology Development, which is aimed at integrating higher education, is being debated in Seimas. Policy is oriented towards establishing an information society for all proclaimed by eEurope.

Potential areas of ICT industry and knowledge technologies in Lithuania for the next five years:
- multimedia product development (content applications, encyclopaedias, multilingual applications, Web pages, CD-ROMs, DVDs and others)
- e-signature applications (PKI and others) for e-Business, e-Government and e-Education
- systems on Chip development, Social Security, Hospitals, Transport etc.)
- e-payments and m-payments secured by digital signature and/or Biometrics Technologies - voice, fingerprint
- e-Business applications development for ERP, SCM and CRM
- open Source developments for Commercial Applications
- electronic Nose with sensors developed in Lithuania for Food, Security and other industrial applications
- laser technologies interconnecting to ITT applications
- computer science applications in Biotechnology - Database and SW development tools for Biotechnics.

DATABANK CONSULTING

Activities to stimulate the diffusion of e-Commerce in Lithuania

Secure *electronic signature* is vitally important for the development of e-Business in Lithuania. The Government of Lithuania clearly supports the idea of using qualified certificates in the public sector. It has decided to establish a legal framework, but direct actions and investments will be left to the private sector. Although the private sector (business alliance „Langas į ateitį" – banking and telecommunication sector giants „Omnitel", „Hansa-LTB", „Lietuvos telekomas", „Vilniaus bankas") have promised to make investments to establish the first certification service provider, the situation is changing as the Private sector promotes the idea of alternative identification instruments (for example, Internet banking solutions).

The Lithuanian parliament has adopted in June, 2000 and amended in June 2002 *Law on electronic signature*. http://www.sorainen.ee/memo_baltic_legal_update_07_00-09_00.pdf. The major amendment states that agreement between parties may give the force of valid e-signature. By Resolution Nr.568 the government in April 2002 has transferred functions of e-signature supervision to the Information Society Development Committee under the Government of the Republic of Lithuania. The Committee was obligated to draft the following legal acts:

- The order of supervision of electronic signature
- Requirements for certification service providers issuing qualified certificates
- Requirements for e-signature creation devices
- The procedure for registration of certification service providers issuing qualified certificates
- Requirements for electronic signature verification procedure
- Requirements and the order for voluntary accreditation of certification service providers
- The order of supply of supplementary certification services (time-stamping, directory services, consultancy services)

IT security issues in the Lithuanian public sector is crucial for advancement of e-Business or distant education, but also in the process of creation of e-Government. However, there is insufficient control over the security of information so far. IT security is emphasised in eEurope as a precondition for promotion of trust and for the encouragement of IT use. The State Strategy of IT Security and its Implementation Plan, approved by the Government in December 2001, marks an important step towards this objective. Today, it is possible to observe positive changes in the field of security of state information. First of all, a special division aimed at coordinating IT security, has been established. The main problems of IT security have been discussed for the first time in the Draft Report on the State and Development of the National Security System of 2001. Secondly, on national security – a draft of the National Security Project – provides for a separate provision on data and information security.

DATABANK CONSULTING

6.4.1.   Bibliography

Main information sources beside those marked by references in the text

1) Lithuanian Prime Minister office, http://www.lrvk.lt
2) Lithuanian President office, http://www.president.lt
3) Lithuanian Seimas (Parliament), http://www.lrs.lt
4) European Committee under the Government, http://www.euro.lt
5) Department of Information and Informatics, http://www.iid.lt
6) Ministry of Economy, http://www.ekm.lt
7) Kaunas University of Technology, http://www.ktu.lt
8) INFOBALT Association, http://www.infobalt.lt
9) Lithuanian Computer Society, http://www.liks.lt

DATABANK CONSULTING

7. Poland

7.1. Political awareness to information society issues and eEurope in Poland

The ministerial conference **„Information Society – Accelerating European Integration"**[36] organised in Warsaw in May 2000 resulted in the creation of the document „eEurope+"[37]. Candidate countries, including Poland, committed themselves to cooperating with the European Commission on a common programme document and to preparing individual plans of activities concerning the issues of Information Society for each country. This initiative met with common approval within the political and decisive circles in Poland. Not only were the issues of information society included in the political programmes, but also new programmes were created. It involved some legislative and organizational changes, with the purpose of implementation and realization of IT-based projects.

7.2. The national context for the implementation of eEurope in Poland

The beginnings of Polish work on the issues of Information Society date back to 1994. They were initiated by discussions within circles professionally connected with information issues. The 1st Congress of Polish Information Technologies, debating in Poznań in 1994, created a programmes document: „**Strategy for IT development in Poland – condition, suggestions, perspectives. Congress report"**[38].

During the 2nd Congress in 1999 **„Pact for Creation of Information Society in Poland"** was formed. It was a declaration of common activities aimed at accelerating the work on the strategy for creation of Information Society in Poland. Such initiatives brought about concrete activities within the legislative area. Their objective was to enable the realization of the declarations.

On the 23rd of February 1999 the Parliament adopted the government project of the **Telecommunications Act**[39] for debate. The legislative process was concluded on 21st of July 2000 with the adoption of the law. However, it still requires amendments, which the consecutive projects of changes are evidence of.

One of the first laws concerning the issues of Information Society and adopting Polish law to the legislation of the EU was the government project of The Copyright and Derivative Rights Act[40] adopted on the 9th of June 2000.

There is also a lobby, existing along the association "City in the Internet"[41], which acts in aid of the Information Society. During the 3rd Conference they organized, the Polish Forum for Information Society was created. Its intention was to put itself into the position of a social partner to the authorities with regard to the area of the realization of Information Society development. The following 4th Conference resulted in the initiative of "The Local Governments Pact for the Information Society". The crowning achievement of the institutional and social initiatives was the adoption of the law concerning the creation of information society in Poland[42] by the Parliament on

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[36] The Information Society Accelerating European Integration (Warsaw 11-12 May 2000), http://www.is2000.pl, http://www.kbn.gov.pl/is2000/index.html

[37] eEurope+ A cooperative effort to implement Information Society in Poland, www.kbn.gov.pl

[38] http://www.kongres.org.pl

[39] http://ks.sejm.gov.pl:8009/proc3/ustawy/943_u.htm
[40] Official Journal of 2000, No. 73, item 852

[41] http://www.miastawinternecie.pl

[42] Law concerning the creation of IS in Poland, Monitor Polski No. 22, item 448

DATABANK CONSULTING

the 14th of July 2000. It is the government's commitment to coordinate and carry out the policy of information society development.

On the 28th of November the Council of Ministers accepted the programme document "Aims and directions of the information society development in Poland"[43]. This project emphasizes the great significance of information society for Poland. The importance of these issues were acknowledged by the government in strategic documents it accepted ("Conception of landscape architecture of country policy", "Mid – term Conception of country economical development till 2002", "Long–Term Strategy of Lasting and Sustainable Development - Poland 2025").

The Council of Ministers commissioned the Ministry of Communications to work on the document "ePolska – Strategy of Information society development in Poland in 2001 - 2006" The activities the government had undertaken up to that moment didn't gain the social partners' approval. According to their opinion the government and parliament initiatives in this field were not coherent, and the inter-departmental cooperation on their preparation is neither concordant nor competent. However, the legislative works were accelerated, which resulted in the adoption of the law concerning access to public information[44] on the 6th of September 2001 and the law concerning electronic signature[45] on the 27th of July 2001.

The main document which determines the future of the Information Society in Poland is the "ePolska – Strategy of Information society development in Poland in 2001 - 2006"[46]. Its main objective is to speed up the reforms and to modernize the economy. This document met with criticism on the side of the Information Society Forum. The main complaint was the lack of connection to non-governmental organisations and centres, scientific organisations, etc.

The works on IT implementation in the Polish society are still going on and at present it seems that there is still a long and difficult way to fulfil the appointed objectives. All the more so, as apart from strategies, plans, positions, etc., there is no actual main element to make the idea of information society come true. The problem is that without the required tool of financial means it's merely science fiction. Although the outlay on IT implementation is systematically increased, its level is still not sufficient. This delays considerably (despite the approval for the idea of information society creation) the realization of the tasks required to fulfil the plans.

According to the Minister of Science and IT Implementation: "contrary to appearances Poland expends much on IT implementation, but no-one actually knows how much exactly; the amounts mentioned range from 500 million to 4 milliard PLN"[47]. This year the funds allocated for IT implementation from the national budget amount to about 31 million PLN, which is merely 0,18% of the entire investment expenses of the national budget.

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[43] www.kbn.gov.pl/gsi/strategie - new.htm

[44] http://ks.sejm.gov.pl:8009/proc3/ustawy/2094_u.htm

[45] http://ks.sejm.gov.pl:8009/proc3/ustawy/2594_u.htm

[46] www.kbn.gov.pl
[47] www.pckurier.pl/archiw/at0.asp?ID=5592

DATABANK CONSULTING

The remedy for the problems connected with the IT implementation process is supposed to be the transformation of State Committee of Scientific Research into the Ministry of Science and IT Implementation as of July 2002. Time will tell if its functioning brings about an increase in the effectiveness of activities connected with the IT implementation in Poland, so far undertaken mostly by:

- the respective ministries of:

  communications,
  education,
  higher education,
  labour,
  social security,
  economy,
  science,
  culture,
  domestic,
  public administration,
  regional development,
  housing economy,
  architecture and building industry;

- President of the Polish Academy of Sciences
- President of the Office of Public Procurement

7.3.   Commitment to introduce e-services

Very important focus areas of ePoland are e-Government e-Education and e-Healthcare. There are many programmes which support accomplishment of aims in those areas.

e-Government
The new action plan for e-Government is defined in "ePolska-2006". In 2001-2005 the "Polish Optical Internet – Advanced Applications, Services and Technologies for the Information Society" programme (PIONIER) is being realised; its aim is the construction of the Polish optical network. The adaptations of on-line administration solutions include also: making information available on government's web-sites, exchanging information and correspondence. On the 11th of December 2002 the pre-concept of the KBN's project "Gateway of Poland" was presented. Its objective is to increase efficiency of public administration's activity through internal and external e-communication[48].

One of the currently introduced activities supporting the development of the e-Government in Poland is the KCIK system – central register of criminal information – implemented in January 2003; another is the e-Gmina programme, aimed at creating an Internet web-site for every community in Poland. Fundamental public services which are presently available on the Internet in Poland for private persons are: income tax, employment agency, social insurance, issuing ID documents, registration of vehicles, issuing permissions for constructions, reporting crimes etc. to the police, resources of public libraries, issuing birth or marriage certificates, candidates' applications for universities, change of residence, and health service; for business subjects: ZUS (public insurance), income tax, VAT, registration of business activity, resources of statistical data, customs declaration, licences and certifications, public procurements.

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[48] www.kbn.gov.pl

DATABANK CONSULTING

e-Education

In 1998 the "Interkl@sa" was created, a country-wide initiative supported by the Parliamentary Commission of Education, Science and Youth and by the Ministry of National Eduation and Sport. One of the projects realised within the confines of this initiative is the "Intel Teach to the Future" project, its objective being the training of teachers to apply ICT in teaching. Also since 1998 the education department have started implementing projects of equipping schools with Internet laboratories: Internet laboratories in every community (which is already finished) Internet laboratories in every lower secondary school, and Internet laboratories in every school (the conclusion is expected in 2006).

In 1999 the "Internet at school: Project of the Polish President" initiative was created. This programme is realised with the help the Polish Foundation for Dissemination of Science and is financed from private resources. There is also the initiative "Cheap computer for the Teacher", which enables teachers to buy computers on hire purchase without interest. Since 2000 the "Free impulses for schools", a project of TP S.A. (the main telecommunications company in Poland), has been providing schools with 600 free rates units for connections of the schools' laboratories to the Internet. At present the number of students per one computer is 44, whereas the number of students per one computer connected to the Internet is 79[49]; consequently, there is still much to do in this field.

e-Healthcare

The construction of the integrated system of the Ministry of Health includes a currently realized set of projects, under the name "Register of Medical Services". This is the biggest IT investment in Polish history. The "RMS" project involves plans of issuing Health Insurance Cards for the entire society. The register of Health Care Institutes is being developed, and the Register of Pharmacies is being prepared for implementation. Common access to medical information will increase the participation of patients in the process of treatment. They will have the possibility to find information e.g. about the location of a selected health-care institution, the specialisation of a chosen doctor, the medical services offered etc.

7.4. Main policies in support of the development of ICT networks and high-speed infrastructure in Poland

Polish authorities are aware that without a high-quality, well-developed telecommunications infrastructure Poland is not able to achieve high dynamics of socio-economic development and to create information society. The last few years have brought a crucial development in the telecommunications in Poland. In 1996 this sector's share in the GDP amounted to 2,5%, and in 2000 this percentage increased to 4,4% of the GDP. Measures have also been taken to increase competitiveness on the Polish market of telecommunications services.

The Polish telecommunication market is still undergoing liberalisation. 22,6% of the fixed incumbent operator, TP S.A., is still owned by the state. 66% of PKT Centertel (one of the three mobile operators) is owned by TP S.A. Telekomunikacja Polska still owns 91% of the market and only in January 2003 it lost the monopoly on international connections. As of the 30th of June 2002 there were 50 licenses for provision of fixed telecommunication services – local public voice telephony, 15 – public national voice telephony, 53 – local network services and 7 – national network services. Before the 1st January 2002, there was a duopoly on the market of local telecommunications services in the individual area code zones.

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[49] IT education 2002, Ministry of National Education and Sport

DATABANK CONSULTING

As the telecommunication services developed, by the end of 2001 the number of fixed phone lines per 100 inhabitants amounted to 28,2, whereas in the mid 2002 – 31[50]. On the 21st of December 2001 the number of ISDN lines totaled 493,000 and it was twice as big as a year earlier[51]. 55 is the percentage of households passed by CaTV networks in Poland as of 30th of June 2002[52]. Internet services of CaTV networks are very competitive compared to similar telecommunications services in Poland and their popularity grows continuously.

Moreover, as the prices of telecommunications services are very high in Poland, high cost of Internet access is a consequence of this situation. The average rate for one hour of using Internet during peak hours was 3,6 euros in 2001 in Poland, while it was 1,7 in the EU countries.

Access to the Internet in Poland is also possible through infrastructures alternative to fixed telephone networks: cable TV, wireless access by means of GSM (WAP and GPRS protocols), broadband radio access, energetic network, by means of infra-red, and in future with UMTS.

Development of electronically provided services is limited because of the possibilities of access to Internet terminals. That is why public libraries and the Polish Post offices are to support the creation of the system of public access to information resources; so are the realization of the INFOBIBnet project and the Interkl@sa programme supported by the Ministry of National Education and Sport.

The development of cellular phones networks is much more dynamic. At present there are three operators of mobile phones in Poland. The number of mobile phones per 100 inhabitants in 1995 amounted to 0,19, in 1999 – 10,24, in 2000 – 17,46[53], and by the end of 2001 – 27 (almost as many as fixed phones). In mid 2002 this rate was 31. But the mobile phone fees are also very expensive. They are the highest among all EUCCs. About 25% of the mobile phones users use phones of the pre-paid type. The deadline for the launching of 3G services is set for the beginning of year 2005. The operators are obliged to cover 20% of Poland's population by the end of 2004 and increase the coverage to 40% by the end of 2007.[54]

Innovation and research policies
Governmental and private expenditures on scientific research and innovation are very low. Employment in research and development activity is decreasing every year. The funds flowing from the EU within the confines of the V Framework Programme weren't fully used. Through Polish enterprises and research posts' participation in EC projects up to the mid 2002 resulted in only about 86% of the fees being recovered.

Activities to stimulate the diffusion of e-Commerce in Poland
The main role of the Polish authorities in regard to the issue of supporting e-Commerce was the creation of suitable legal environment. It involved: the act of September 25th, 2001, concerning the change of the act concerning legal protection of personal data; the act of July 27th, 2001, concerning the protection of data bases; the act of September 18th, 2001, concerning electronic signature; the act of September 6th, 2001 concerning the access to public information. Furthermore, the modification of the Public Procurement Act caused the announcements concerning public procurements to be made available on the WWW and FTP servers of the Office of Public Procurement since 1997.

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[50] 2nd Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector), IBM
[51] Telecommunication Services Market in Poland – 2001, URTiP
[52] 2nd Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector), IBM
[53] Telecommunication Services Market in Poland – 2001, URTiP
[54] 2nd Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector), IBM

DATABANK CONSULTING

The plan of ePolska includes the following objectives concerning the support of e-Commerce:

- Creation of mechanisms and structures of electronic economy development in Poland
- Introduction of indispensable, legal regulations consistent with European standards
- Assurance of security and high-level reliability in electronic turnover
- Increase of SME's shares in e-Commerce
- Enhancement of the confidence for e-Commerce and electronic services
- Support and promotion of Polish industry based on ICT
- Facilitation of the public procurement system through IT networks

The Polish government and parliament operate actively to achieve these goals. Apart from the laws and decrees mentioned above, other projects have been organised, e.g. trainings aimed at supporting SME in e-Commerce.

The Polish e-Commerce market is characterised by great potential. This especially concerns the markets of: software, information, entertainment, finance, as well as education and advice. For instance: at present, most banks offer part of their services via the Internet or telephone; 3 of them don't possess locations available for clients at all, as the service is conducted entirely over Internet. However, only 7% of Internet users in Poland make purchases via Internet[55].

7.4.1. Bibliography

1) "Strategy for IT development in Poland – condition, suggestions, perspectives. Congress report."
2) Telecommunications Act
3) The Copyright and Derivative Rights Act
4) Law Concerning the Creation of Information Society in Poland
5) "Aims and Directions of the Information Society Development in Poland"
6) eEurope+ A co-operative effort to implement Information Society in Poland
7) "Conception of Landscape Architecture of Country Policy"
8) "Mid – term conception of Country Economical Development till 2002"
9) "Long - term Strategy of Lasting and Sustainable Development – Poland 2025"
10) ePolska – Strategy of Information Society Development in Poland in 2001 – 2006
11) PWC Consulting – 1st report on Monitoring of EU Candidate Countries (Telecommunication Services Sector), July 25th, 2002
12) European survey of Information Society. Extension to central and Eastern European Countries and Mediterranean Area
13) 2nd report on monitoring of EU Candidate Countries (Telecommunication Services Sector)
14) Telephone Services Market in Poland in 2001 – Office of Telecommunication and Post Regulation
15) "Gateway of Poland"
16) ePolska – 2006 – Action plan for Information Society Development in Poland

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[55] www.kbn.gov.pl/infor/wrota.pdf

DATABANK CONSULTING

7.4.2. WWW Sources

1. www.sejm.gov.pl
2. www.kbn.gov.pl
3. www.urtip.gov.pl
4. www.cir.gov.pl
5. www.stat.gov.pl
6. www.interia.com
7. www.interklasa.pl
8. www.prywatni.pl
9. www.signet.pl
10. www.paiz.gov.pl
11. www.cbos.pl
12. www.computerworld.pl
13. www.snti.pl
14. www.centrumdoradztwa.pl
15. www.men.waw.pl
16. www.mi.gov.pl
17. www.mofnet.gov.pl
18. www.mpips.gov.pl
19. www.mg.gov.pl

DATABANK CONSULTING

8. Romania

8.1. Political awareness to information society issues and eEurope in Romania

In 1998 the Romanian Government approved the first National Strategy for Acceleration of Informational Society Implementation Rhythm and The Action Programme for IT Sector Development in Romania (www.ici.ro/romania/Internet_fiesta/prezentari/fadm.html). A well defined and substantiated action plan was made in 2002, after the eEurope+ Action Plan, called Romanian Government Strategy for IT Sector Development, where Romania makes a commitment to adopt and to implement eEurope's goals and its specific actions.

The development of the Information Society is a strategic objective and a priority of Romanian policy. With this aim, decisional factors involved are: Government, Academic Staff, , and the Private Sector (http://www.mcti.ro/mcti0.html?page=1168). According to the Romanian Government Strategy, private sector involvement is crucial for a sustainable development of infrastructures, content and applications of Information Society. (http://www.wsis-romania.ro).

Many governmental actions and measures refer to the ICT domain -especially since 2000- regarding services, education, administration and labour structure. So, the new founded Ministry of Communications and Information Technology (MCTI) organized auctions for a portfolio of projects aiming to produce: IT product packets and systems for public services (information, social inclusion, virtual libraries, taxes), promotion of IT and high tech research (in academic but also commercial milieus), R&D results transferred for free to industry, encourage SME economical activities in co-operation using efficient information channels, supporting tourism and the management in the field through ITC means.

A special place has eAdministration which has the goal to improve the relation between citizens and local or central administration (http://www.gov.ro/obiective/map/e-Administration.pdf). It is also paid much attention to vocational and continuous education based on ICTs and the Internet; in this respect, there are projects and funds allocated to provide computers and IT services for villages and to extend Internet connectivity in the country side for schools, administration and other matters (social problems and technical advice).

Along with governmental and EU funds and the growing IT market, private initiative is stronger – as resulted from the number of firms involved in ICT domain (services, products, training, marketing and commerce). However, difficulties of the transition economy lessen the number and the effects of such initiatives, and implementation is delayed or even impossible for some regions, with the result of less interest for citizens and the local administration.

DATABANK CONSULTING

8.2.   The national context for the implementation of eEurope in Romania

In response to the eEurope initiative set in Lisbon in March 2000, in May 2000, the Central and Eastern European Countries held in Warsaw a European Ministerial Conference. Romania was a part of it (http://www.esis2.imt.ro/ConferintaVirtuala/ConclAdnotVarsovia.doc). This Conference was an opportunity to recognize the strategic goal set by the EU-15 and to agree to embrace the challenge raised by the EU-15 with eEurope and to decide to launch an "eEurope-like Action Plan". The initiative, named eEurope+, is an Action Plan prepared by the Candidate Countries, by and for them, with the support of the European Commission during the launch Gothenburg European Summit June 2001. This Action Plan adopts all the priority objectives and targets of eEurope, but provides actions, which address to the specific needs of the Candidate Countries (http://www.mcti.ro/mcti0.html?page=917).

The authority invested with the co-ordination and implementation of ICT policies in Romania is the Ministry of Communications and Information Technology (MCTI). Moreover, there are stated directions for the development of this shift that has to be engineered by the entire society under the Ministry of Communications and Information coordination: "This shift will happen in administration (e-Government), in business (electronic commerce), in education (distance education), in culture (multimedia centres and virtual libraries) and in the way of work (teleworking)" (according to the Ministry of Communications and Information vision found at www.mcti.ro).

The Group for Promotion Information Technology (GPTI), was established in March 2001, this has been given even higher authority than the Ministry of Communications and Information, and its role is to coordinate cross-sectoral projects . GPTI functions like a task force and is organized under the high patronage of the Romanian Prime Minister and of the President of Romania, and it has in its structure officials from other seven ministers of the Romanian Government (www.mediafax.ro) (www.mcti.ro/gpti/index_eng.html).

In order to be able to make the necessary adjustments, MCTI quarterly provides a report about the stage of the strategy implementation.

There are some ministries partially involved in eEurope actions, each having specific responsibilities, as follows:

- Ministry of Labour and Social Cohesion (MMSS) – promotion continuous learning in TIC, promotion e-working;
- Ministry of Education and Research – (MEC) – cheaper Internet for researchers and students, encourage youth access into the digital age and its commodities;
- Ministry of Finance (MFP) – finance on line, public procurement;
- Ministry of Justice (MJ) – harmonization with European legislation;
- Ministry of Health (MSP) – health on line;
- Ministry of Industry and Resources (MIR) – technological transfer.
- Ministry of Public Administration (MAP) – transition to e-Administration.

Also, many of the local authorities and different organizations are working with these strategic issues. The National Strategy for promoting the New Economy and the Implementation of Information Society - issued in February 2002 -, states policies in support of the development of ICT networks and high-speed infrastructure within the country. MCTI is responsible for supervising activities in the area, and public or private communication service providers bring it to real life. MCTI launched a national auction for projects regarding implementation of various fields in Romanian Information Society, based on governmental funds.

DATABANK CONSULTING

8.3.   Commitment to introduce e-services

eEurope focuses on e-Government, e-Business, e-Learning, e-Healthcare and echoes other public initiatives in Romania. In this respect, the government defined specific goals for each of these domains, though the responsible authorities (http://www.wsis-romania.ro). A National Strategy for promoting "New Economy and Implementation of Information Society refers" to concrete actions to define the legislative context and to encourage the development of domains included in the eEurope initiative. Professional associations and the parliament promoted and approved the legislative context necessary for e-Business (electronic signature and e-Commerce laws). Many projects were announced and started– based on governmental funds, but also based on EU funds; commercial firms, universities, research institutes applied and competed for such funds.

An institutional and legal frame has and continues to be, created, to form and sustain the competition market in communication and Information Technologies, for free distribution and exchange of information to citizens. In this respect, the new founded National Authority for Regulations in Communication and Information Technology (ANRC), and the Group for Promotion of Information Technology (GPTI) near MCTI and has prepared laws by a group of experts and promoted by Romanian parliament in the field.

The ICT strategy to advance towards knowledge economy concerns two main domains:
a) Education.
   - schools endowment with computers and Internet connection (initiative "every school with at least one computer connected to Internet within year 2004");
   - teachers preparation to use computers and new methods in education;
   - centres created for long life learning and flexibility qualification.
b) Culture
   - support or creation and development for digital content;
   - provide public information in digital format (Romanian language);
   - international co-operation for public information (other languages in Europe).

In the frame of e-Healthcare the national strategy provides measures for:
   - information system and network for the National Healthcare House (CNAS),
   - creation of the high speed extranet for hospitals and clinics (starting with university and emergency hospitals),
   - use of smart cards for medical assistance,
   - creation of medical services and medical service providers electronic index,
   - developing web sites for information on preventive medicine and healthcare education.

Government's commitment to promote e-Society is expressed through: the creation of the legislative frame for the free transfer of information, defining the legislative status for electronic documents and digital signature, for security of communications (HG 354/15.04.2002), for electronic commerce and for IPR (Law no.8 /1996 and OUG 124/2000). On the other hand, the commitment refers to the promotion of open and competitive market for information based services and communication (from January 2003 the monopoly of RomTelecom is to be broken in telephony communication infrastructures). Governmental and non-governmental organizations are also involved in legislative initiatives regarding electronic fraud and unauthorized access to information in electronic forms.

DATABANK CONSULTING

e-skills

A great number of Romanian IT specialist go abroad or emigrate in western developed countries. To reduce the number of such "brain drain", Romanian leadership (parliament and government) offered some facilities for IT professionals: lowered taxes, high wages and enhanced job opportunities in the field of ICT.

e-Government

The responsibility for design and implementation of e-Government actions belongs to the Ministry of Communications and Information Technology, which coordinates a group of ministries, departments and institutions, according to the various activities. The Information Technology Promotion Group evaluates their actions four times a year. The Ministry of Communications and Information launched a portal which provides all kinds of information regarding e-Government – authorities involved, national strategy, projects, e-Government solutions, legislation, activity reports etc. (http://www.mcti.ro).

In May 2002, the Romanian Government approved the government strategy for the ICT Sector development, set up in order to create a framework for reaching the Informational Society, to establish objectives and actions according the EU Directive. The e-Government strategy is outlined in the policy document (http://www.rnc.ro/strategie2000/StrategieTICfebr2000.htm).

In order to provide a well structured strategy, the Ministry of Communications and Information intends to approve a Project for Shifting Strategy to the New Economy and to Information Society in Romania. This document provides a lot of information regarding the main objectives, actions and guidance lines, responsible authorities and institutions, timeframes, and mechanisms for monitoring performance, including e-Government.

The Romanian Government Strategy for the IT Sector Development mentions that the set up and the publishing of an e-Government Plan is absolutely necessary. This Plan must adopt Internet-open standards. Meantime, an implementation schedule must be defined, and it must be coherent throughout, from ministers to their subordinates. This Plan has to define: the elements of technical infrastructure, the on-line applications, all the policies that rule the implementation and utilization of IT into the e-format public service delivery. In order to establish, in a coherent manner, what it is feasible and what is not, it is a must to develop an e-Government strategy, which needs the agreement and co-operation between agencies. For Local Administration issues the action plan is established by e-Administration Strategy for public Administration Modernization (HG1007/4.10.2001).

In order to speed up the digitalisation of public services, the Romanian Government is working to create the legislative environment. A good example is the 24th Order. From January 2002, cashing of income taxes and local taxes, states that the public administration authorities are compelled to ensure the implementation of electronic devices in order to cash in the taxes and income taxes in every county until the February 1st 2003.

Also, both on the national and regional level numerous awareness activities and conferences have been organized over the past few years.

The Ministry of Communications and Information Technology (MCTI) is a specialized body in the ICT sector and is responsible for defining and implementing all e-Government actions, in

DATABANK CONSULTING

cooperation with groups of experts – some named by governmental institutions. The objective is the development of ICT used in the Public Administration for the modernization, promotion of transparency, accountability and efficiency.

The most important projects coordinated by the Ministry of Communications and Information Technology are:

- The e-Procurement project (the Electronic system for public acquisitions www.e-licitatie.ro);
- The e-Tax payment project (tax payment with electronic means);
- A gateway containing public administration forms for the relationship with the citizens and the business environment (https://www.e-gov.mcti.ro);
- The e-Job project - Information System for Job Search and Recruiting (www.e-cariere.ro);
- Romania Gateway project (http://www.wsis-romania.ro, http://www.mcti.ro/mcti0.html?page=1170).
- E-Referendum – to offer citizens to express through Internet their opinion on national interest subjects.

The final aim is to offer citizens and business people public services in a digital form, around the clock seven days a week, on sites of all ministries of Romanian Government. The implementation effort will be co-ordinated by GPTI and every ministry (http://www.esis2.imt.ro/Integrarea%20europeana/strategia_nationala_pentru_domen.htm).

e-Learning

In Romanian universities, previous forms of education that do not imply student presence are now transformed to distance learning, in transition to e-Learning. In this aim, the Ministry of Education and Research (MEC) developed a set of criteria to evaluate the stage each university (state or private) reached to perform CBT (computer based training) and WBT (web based training). Beside the higher education authority interest in this field, almost all education institution tryes to use computers and their own intranet or the Internet as means in the learning process - for quick, always available and complete information transfer. However, as in other sectors, the difficulties of the transition economy hinder the spread of modern tools in education, due to the shortage of funds for software instruments and for high speed links to the Internet. It is still too expensive for education institutions in Romania to buy specialized software - in order to prepare and to manage the content, or for communication inside the group of students or with the teachers. Most applications used in the learning process do not provide interactivity, they only present information to students and offer means for knowledge testing.

The Ministry of Education and Research has promoted a programme, INFOSOC Œ for the computerized society, with the aim to analyse the means to stimulate a coherent and important development of the e-society in Romania. The main objectives of this programme are:

- Establishing sustainable conditions required for implementing an e-society in Romania;
- Development of the scientific and technological support for establishing the structures and services specific to the e-society;
- Increasing the awareness and impact on, and the utilization of, the structures and services provided by a e-society in economy and civil society, down to the citizen level.

The nation wide network of Agencies for Occupations and Labour Force (AJOFP) organize, in every county, qualifications for ICT courses for unemployed persons, many of them based on funds coming form the Ministry of Labour and Social Cohesion (MMSS).

DATABANK CONSULTING

e-Business

In the transition to an open market, Romanian companies face the competition and the challenge of New Economy, so many of them have their own site for marketing, few of them being interactive. Recently, Romanian parliament adopted laws necessary to develop e-Business in the country: electronic signature law and e-Commerce law.

The Law on Electronic transposes into the Romanian legal system the main provisions of the Directive 2000/31/EC of the European Parliament and of the Council on certain legal aspects of Information Society Services, in particular electronic commerce, in the Internal Market. Art.6 provides that the undertaking of commercial communications by electronic mail is forbidden, except in the case where the recipient previously expressed his consent to receive such communications. In the same article, the Law mentions the minimum conditions to be complied by the commercial communications which are part of, or constitute, an information society service (Law no 365/2002 regarding the e-Commerce). The Romanian legal system allows contracts to be concluded by electronic means. The law provides for the non-liability of intermediary service providers, under certain conditions, as regards 'mere conduit"(Art.9), temporary storage of information ("caching"-Art.10) and permanent storage of information ("hosting"-Art.11). It has to be underlined that the Directive prevents Member States for imposing to the service providers to monitor the character of information they transmit as intermediary services providers. The Romanian Law on Electronic Commerce contains a wide article of definitions (Art.1), which introduces into the Romanian legislation new basic concepts largely used in the EU legal system. Article 2 provides the "Objective and scope" of the regulation, in compliance with the dispositions of the Directive 2000/31/EC. Article 4 is about "The principles of providing information society services".

The use of credit cards is, at present, not very popular in Romania although it is usage is growing. The policy of the government is to encourage investors and companies to adopt e-Commerce, supporting projects and offering facilities to SMEs interested in the field (through the Ministry of SMEs – MIMMC). This new economic environment will come to real life for the public acquisitions, which will proceed through e-Commerce http://www.rnc.ro/strategie2000/StrategieTICfebr2000.htm.

The electronic I.D. card, i.e. a chip card used as the tool for affixing signatures, can be used as the means of identification for access to service portals. This will avoid the proliferation of specialized cards; otherwise, in the absence of a standard solution, every department or administration would certainly issue a card of its own for access to its services. (http://www.gov.ro/engleza/obiective/map/eAdministration.pdf)

To accelerate the process, SMEs are encouraged to participate to the „Euro Info Centre e-Business" campaign launched by the EU, by means of Information Centres created for a good knowledge transfer from Europe experience to Romanian business environment and for co-ordination of activities in "Go Digital" campaign of the EU in the country. Some activities already started are conferences and advice in the field of electronic commerce and e-Business strategies of SMEs, also creation of web sites and digital services to virtual communities interested in the area (http://www.euro-info.ccir.ro).

DATABANK CONSULTING

8.4.   Main policies in support of the development of ICT networks and high-speed infrastructure in Romania

Until January 2003 the only company providing terrestrial communication infrastructure was RomTelecom. Small firms and home connections to the Internet are usually dial up, through RomTelecom phone lines. RomTelecom's ISDN connection has developed slowly.

In all cities and towns throughout the country exist CATV companies, providing mainly TV broadcast on multiple channels. In major cities there are one or two metropolitan networks providing also Internet access on the same cable. Currently, 71% of the 2.2 million TV subscribers in Romania now use cable TV, 9% use satellite –2nd in central-eastern Europe and on the 6th palace in Europe. This is due to law tariffs for CATV subscribers (3.5 USD/month) and to large numbers of companies (500 all over the country) offering CATV services in major cities and in the country side (http://www.eu-esis.org/esis2basic/RObasic7.htm - European Survey of Information Society Projects and Actions).

Many CATV service providers decided to extend their services for broadband access. So there are S.N. Radiocomunicatii (SNR – National broadcasting company), PCNET, Astral Telecom - networks with national cover. Mobile phone service providers (Connex GSM, Zapp Mobile, Orange Romania) offer now Internet access, too.

The first national data network was the National Research Network (RNC), with other national networks evolved: RoEduNet – network including mainly universities but also schools or public libraries throughout the country (1996), National Network for IT based Services (pilot project in 2001, country level in 2002 – 2005), extranet Government Network (central administration in 2003, local administration throughout the country – final 2003). Based on funds from EU countries or EU programmes, some universities developed their own high speed networks on campus (e.g. Polytechnic University of Bucharest).

The associations of CATV providers (ANISP) pushes its members to offer an alternative to communication infrastructure administrated now by RomTelecom – with the monopoly disappearing in 2003. At least one CATV company in major cities is prepared to develop their own infrastructure (fibre optic, or wireless) to provide access to Internet, voice over IP and video conference facilities (e.g. nation wide Astral Telecom, RDS, RoNIX).

DATABANK CONSULTING

Participation for all

The Ministry of Communications and Information, in cooperation with Ministry for European Enlargement (MIE) and Ministry of Justice (MJ), has launched series of actions to:
- adopt the accessibility standards for ICT products (designed for all);
- improve the legislation and establish relevant standards in order to ensure the agreement with the principle of accessibility;
- adopt the guide lines for public web sites to improve web accessibility (WAI).

It appears that as the Romanian society advances to words the Information Society, there are several barriers and drivers: great interest of young generation for ICT domain and good background and practice in IT acquired in schools – based also on a long experience of IT specialists in Romania. The national X25 public network (initially named ROMPAC evolved to LOGICnet) has not the success of the similar networks in western countries; now Romania is in the position to build a modern high speed infrastructure without looking to compatibility matters. CATV networks spread all over the country and the penetration of new wireless technologies are premises for such an optimistic view. The Ministry of Communications and Information Technology and the other governmental and nongovernmental institutions mentioned above, are created just to organize and implement the strategic objective and priority that is Information Society for the country now.

8.4.1.   Bibliography

1) National Strategy of Romania Preparation for adhesion into EU, Second Part, Chapter B: The desirable arrival point: Romania and the Global Information Society, Critical examination of strategic options, Elaboration Committee of national strategy of Romania Preparation for adhesion into EU, Snagov, June 1995;
2) The order regarding the general concept of Romanian Society Information (HG 490/16.07.1991);
3) Europe+, A co-operative effort to implement the Information Society in Europe Action Plan prepared, by the Candidate Countries with the support of the European Commission, for launch during the Göteborg European Summit 15-16 June 2001;
4) The Bucharest Declaration The Bucharest Pan-European Conference in Preparation of the World Summit on the Information Society: Towards an Information Society: principles, strategy and priorities for action (9 November 2002);
5) Knowledge-based Economy Issues Paper for the 19-22 February 2002 World Bank Conference, Paris on February 19 – 22, 2002

DATABANK CONSULTING

9.   Slovakia

One of the specifics of the Slovak Republic vis-à-vis its current development towards the informatization of the society as well as its future participation in the e-Europe has been its rather complex and not always favourable historical development in the terms of computerization and informatization in general. In this connection we have first of all to take into account the following main features: As a part of the former Czech-Slovak Federative Republic and its asymmetric model, as in various other problem areas also in computerization the Slovak Republic has been less developed than the Czech Republic. This is quite obvious if one considers that on a territory level, in particular in Prague (the federal and Czech capital), all federal as well as Czech institutions were based. Thus the concentration and utilization of the available computer technology has been correspondingly higher than in the Slovak Republic. For example in 1993 when the two republics separated from each other, the index of personal computers per 100 inhabitants (EU15=100) was 27 in the Czech Republic, but only 17 in the Slovak Republic. In absolute figures this represents 2.9 against 1.9 per 100 inhabitants, the eighth lowest among current candidate countries. The overall technological basis for computerization under the former socialist regime has been less developed.

An attempt to overcome this technological gap through the introduction of the so-called EC (Unified System of) computers produced on the co-operative basis by all former socialist countries was also not a successful one, as the new EC computers were technically not reliable and to the large extent depended on the components from "the West" as e.g. in the disk memory units, etc. However, in spite of this evident technological shortcomings, there have been some areas of computerization, at quite a remarkable and also internationally recognized level. For example in the state statistics, where thanks to the technical assistance from the UNDP there was established in the 1960s a Computing Research Centre in Bratislava, as a research and development centre for the former Federal Statistical Office in Prague. Some of the research projects and outputs have become important contributions to the programmes of the Statistical Computing Project even under the framework of the UN Economic Commission for Europe in Geneva especially in such projects as ISIS – Integrated Statistical Information System, METIS – Meta information system for Statistics (since that time being further developed under the programme of the EU Eurostat, and also as a METANET Network of Excellence funded by the EU, etc.).

In term of computerization and informatization, the start of the Slovak Republic as an independent state on 1 January 1993 has been to a large extent quite negatively effected by consequences of the above previous historical development, especially as far as the technological and communications infrastructures are concerned. However, on the other hand the new statehood has given the new country a good chance to start with the programmes of computerization and informatization in many cases from scratch i.e. in the new state institutions with the new latest computer and telecommunications.

DATABANK CONSULTING

9.1.   Political awareness to information society issues and eEurope in Slovakia

As we have already mentioned above, the building of the new state has been in many cases a parallel activity to the introduction of the new information and communications technology, as well as into the practice of the new state institutions and other sectors of society. As a result, the first years of independence have also seen the launching and/or continuation of several ambitious computerized projects which to some extent, later on, could serve as a good starting basis for the country's drive towards contemporary trends in informatization of the society. These include those under the e-Europe Initiative of the European Union, which off these projects the following ones have to be mentioned:

- the GOVNET project for networking the government institutions into an integrated networked information system
- the State Treasury of the Ministry of Finance, the SIS – State Information System, the ASIS
- the Automated Statistical Information System of the Statistical Office of the Slovak Republic
- the INFOVEK – a web based Educational system for elementary and high schools
- the SANET as a non-profit data network of universities, the Slovak Academy of Science and research institutions

Various other similar projects in individual ministries and other central government institutions have been launched at that time. As a result by, the end of 1990s, practically all government ministries and other institutions and agencies have developed their own web based information systems offering basic information on particular institutions, as well as giving opportunity to access and approach them in the way of on-line communication. Particular web sites of individual ministries and other governmental, but also non-governmental institutions and agencies, can be found on the following web site: http://www.zoznam.sk/katalog/institucie/vladne_a_statne/ministerstva.

Most of the particular web sites are also offered in English language versions, but there is to some extent a problem with the practical utilization of them given by the fact that all of them have been created without any specific unified model. Hence every particular web site has its own different internal structure and logic, which makes their practical utilization less efficient than if they would have been developed according to the same model.

9.2.   The national context for the implementation of eEurope in Slovakia

Similarly to the ongoing global trend in most developed countries, regarding informatization of the society, the Government of the Slovak Republic has by its resolution No. 558/1999 of the 30 June 1999 decided and has delegated to the minister of transport, posts and telecommunications a responsibility to prepare, in cooperation with all other central organs of the state administration a consistent "Strategy of the Development of Information Society in the New Millennium (in the Slovak Republic)". This task has been a direct follow up to the negotiations of the Government of the Slovak Republic with the Slovak Rectors Conference and also to the conclusions of ministerial forums of the candidate countries of the Central and Eastern Europe devoted to the issues of the development of the informatization of society.

DATABANK CONSULTING

By the amendments in the so-called Competence Law (under the responsibilities of the Ministries and other central organs of the state administration in the Slovak Republic) since 1 January 2000 the competencies in the field of informatics have been effectively assigned from the Ministry of Transport, Posts and Telecommunications to the Ministry of Education of the Slovak Republic. Accordingly, on the basis of that changed situation, in June 2001 the Ministry of Education of the Slovak Republic has prepared the strategic document no. 1401/2001 for the Government of the Slovak Republic named "Politics of Informatization of the Society in the Slovak Republic". The particular strategic document has been based on and has adopted and elaborated at a national level, all the basic principles (encompassing all the strategic documents as adopted by the Member States) stated by of the European Union at the Lisbon European Council summit in March 2000. This was combined with all subsequent strategic documents including the e-Europe Action Plan and the conclusions of the Warsaw Ministerial Conference initiating the common strategy of the candidate countries and the EU in the form of the "e-Europe+ Action Plan". The document has been submitted to the session of the Government of the Slovak Republic on 13 June 2001 and the particular conclusions No. 522 has been adopted. In the above particular conclusions, the Government of the Slovak Republic has:

- approved the politics of informatization in the Slovak Republic and also joining the e-Europe Initiative by the Slovak Republic

- declared that the comprehensive approach to the issues of informatization of the society in the Slovak Republic has to be considered as one of the strategic goals of the Government

- assigned the minister of education to prepare and submit to the Government for approval "The Strategy of Informatization of the Society in the Slovak Republic", including all necessary institutional, competence and legislative provisions as well as to prepare also "An Action Plan of the Strategy of Informatization of the Society in the Slovak Republic" including all tasks for the Slovak Republic coming from the eEurope+ Initiative.

On the basis also of the above strategy and the particular Action Plan, then several important legislative acts have been adopted in the Slovak Republic to create the necessary legislative basis for the gradual implementation of the principles of the e-Europe+ strategy. Among them, the most important have been:

- Act No. 52/1998 on the Protection of Personal Data in Information Systems

- Act No. 211/2002 on Providing Information to the Public and/or on a free access to information

- Act No. 215/2002 on Electronic Signature

- Act 241/2002 on Protection of Confidential Matters

- Act 540/2001 on the State Statistics

- Act 428/2002 on the Protection of Personal Data (as an innovation of the Act No. 52/1998)

DATABANK CONSULTING

In addition to the legislative side of the commitment of the Slovak Republic to the implementation of the e-Europe strategy, there have also been developed some necessary technical and organizational preconditions for the further development in this area. Among various other measures and initiatives, up has been created a special web site on the e-Europe (http://www.eEurope.sk) containing all relevant information on the subject, including those on the e-Europe+ project, as well as some other projects, programmes, surveys, financial indicators and funding, etc.

9.3.   Commitment to introduce e-services

The e-Europe+ initiative in the Slovak Republic is being applied in the following areas.

e-Education

As we have already mentioned above, the Ministry of Education of the Slovak Republic has been responsible not only for the implementation of the principles of the e-Europe national strategy within its direct responsibility in the area of education but also for the overall co-ordination on the national level among and in co-operation with all other ministries and other central organs of the state administration. Within its direct area of responsibility, the Ministry of Education has been responsible for the ambitious strategy of informatization in education on all levels of the educational system from the elementary up to the higher education.

The backbone of the e-Education system in the Slovak Republic has been since its inception in 1998 on the web based project INFOVEK (http://www.infovek.sk). The main objective of the project has been to prepare the young generation for the challenges of the information society and also to prepare them for their future citizenship in the EU. One of its main strategic objectives has also been to give them some basic IT related knowledge and skills as needed for equal opportunities in the future, in the very challenging but also demanding labour market of the Union. In order to achieve this goal, the project, as one of its main tasks, has had the gradual penetration of the Internet into all basic and high schools in the Slovak Republic i.e. link gradually all schools to the Internet. In this respect, it has been expected that under this project all schools in the future – originally be the year 2004 - will have at least one class-room and/or laboratory with at least ten PCs linked to the Internet. It has been expected that through this linking all schools, even those in the most remote areas will be connected to the Internet and through them also the whole local communities. Unfortunately, due to the lack of funding, the progress in the Internet penetration to schools has been much slower than originally expected. However, due to these mainly budgetary reasons by the end of the year 2002 only 855 schools out of the total 2,500 have been linked to the Internet. That means that currently only about one third of all schools belonging to the INFOVEK project have been linked to the Internet. Also, according to the available information from the project staff there is no chance that the strategic goal of linking all schools could be achieved anytime in the foreseeable future and definitely not before the Slovak Republic will become a member country of the EU. In addition to this technological aspect of the project, there are also some other closely related partial objectives in order to achieve the most efficient utilization of these computers and of the Internet in the class-room.

DATABANK CONSULTING

These include the educational process as well as other development activities. In this respect then, the INFOVEK project has the following objectives:

- preparation of pupils for proper utilization and communication through available ICTs, as stated above so far only about 30% of all eligible pupils has had that opportunity

- education and preparation in English as a language of the Internet has been organized on the same principles as for all other subjects i.e. the INFOVEK offers teaching materials, manuals for teachers, on-line assistance, discussions, etc. not only for pupils and teachers but also parents, school masters and other interested groups of users

- organize various discussion groups among pupils from different schools as well as countries, etc.

- assist teachers in various subjects by supplying them through the Internet various pedagogic, educational materials, syllabi, etc. The project organizes various forms of training programmes, summer schools, courses not only for teachers but again also for head masters, professional sponsors, administrators, etc.

- give young people an access to interesting sites on the web, links, addresses, etc.

The main problem of the INFOVEK project, which is symptomatic of the whole education system in the Slovak Republic, has mainly been an absolute lack of funding. Hence, the penetration of the project has so far not been as fast as it has been originally expected and still many schools have been not only without access to the Internet but also without any computers. Another closely related problem has been the problem with qualified teachers especially in subjects like "Computing" and "English language" due to the low salaries and overall low prestige of the teaching profession. Most qualified teachers in these particular subjects have looked for their employment opportunity outside of the education system, as with their ICT and/or English proficiency they could earn much high salaries especially in private companies. Such positions could pay them salaries several times higher than they could earn as teacher.

Another public network system SANET (a member of the GEANT international consortium) currently operated as SANET II Project as approved by the Government of the Slovak Republic in year 2001 (http://www.sanet.sk) has been serving as a basic information infrastructure of the Ministry of Education of the Slovak Republic and as such is linking together all universities and higher education institutions, institutes of the Slovak Academy of Science, research institutes, cultural institutions and some selected elementary and high schools.

e-Government

The Government of the Slovak Republic and in particular the Office of the Government of the Slovak Republic has been one of the first government institutions that has started, through its project GOVNET an initiative to utilize modern computer and telecommunication technologies. The project has been launched by the Decision of the Government of the Slovak Republic No. 310/1993 i.e. the first year of the independent existence of the Slovak Republic. Since that time - although the system has encountered various organizational and technical problems - the system has now been linking together all central organs and institutions of the state administration. These include the Office of the President, the Office of the Government, the National Council (parliament),

ministries and various other central organs and institutions through e-mail, a SMS gate, access to Internet and some information sources.

Some further extension of the GOVNET towards regions and districts has been dependent upon the implementation of the particular Conclusion of the Government of the Slovak Republic. However, some of the other functions have been now fully provided through the particular web site of the Office of Government of the Slovak Republic (http://www.government.gov.sk). This has been offering information not only about the Government of the Slovak Republic including its agenda since 1997, communiqués, various activities, programmes, and initiatives (e.g. currently on the information campaign regarding our future membership in the EU or NATO, etc.), but also about the Office of Government of the Slovak Republic itself and through various links about all other government institutions, organizations and agencies, etc. The Government's website, as with web sites of other ministries and central organs also offers an on line access to the particular government institutions and enables direct inquiries and requests for various information of the interest for the general public under the particular Act No. 21/2002 on Providing (free access to) Information to the Public.

The only problem is that in the case of some ministries this procedure now is technically even more complex and time consuming than it has been before. While before it had been possible to get some information through a simple phone call, etc. nowadays some ministries first require the completion of a special on-line form (e.g. an ordinary e-mail is not accepted) with various accompanying personal and background data and then only within the stipulated period of time (10-14 days) they provide the particular information.

e-Business

One of the areas where informatization has also been in progress is the area of e-Business although in its different sectors, the penetration and especially the practical utilization has been quite different. Of all the various potential areas of e-applications in business, probably the most developed has been the system of e-banking. All major banks in Slovakia have already been offering this modern, time and effort saving methods among their services but as the recent survey has demonstrated, only a relatively small number of bank clients (6%) are using this form of banking, although they agree that it is a form that is very promising for the future and intend to utilize it more widely than at present. To some extent this is caused by the fact that the whole concept of modern banking e.g. also through credit or debit cards has come to the country only rather recently in comparison with the most advanced countries in the world, where almost all transaction and bank operations are conducted via "non-cash" fund transfers. One of the reasons why the modern form of banking are not so widely utilized yet is also the fact that the bank transfers, operations, etc. are in some cases still rather slow, they take several days and so many bank clients rather direct cash payments, transfers, etc.

Another related problem is with the recently enacted electronic signature, as one of the important legislative pre conditions for the wide utilization of the advantages of e-Business. Unfortunately, according to many complaints, many institutions still refuse to accept the e-payments and/or money e-transfers with an accompanying electronic signature, and still require payments to be carried out classically through the post vouchers. A similar situation of non confidence exists also towards various forms of e-trade, e-shopping (http://www.shopping.sk) etc. Although these modern forms of services are available in the Slovak Republic, and some basic necessary legislative preconditions have restored as e.g. by the Act on Electronic Signature, on the Protection of Personal Data, etc. they have still not achieved a wider utilization among the general public.

DATABANK CONSULTING

Other e-application areas

In addition to the above mentioned e-application areas, there are also some other areas where there are already modern methods of e-activities applied. For example in the area of justice, recently there has been the launch of a project on the electronic system on assigning individual legal cases to the particular judge through an automatic system of the so called "Electronic System of the Court Management". Some other application areas have been introduced under the "Health Information System", ISOP – Information System of Social Support and Assistance of the Ministry of Labour, Social Affairs and Family, ISU – Information System of Territory, the development of the Register of Economic Subjects has been in progress under the coordination function of the Statistical Office of the Slovak Republic. For example in the case of the Ministry of Health, the main focus currently has been on the preparation and development of the Integrated Information System of Health and its first stage has to be completed by the 31st December 2003. One of the main functions of this system has to be the "informatization" of health institutions on the principles of the system of quality in health services. Some progress has been achieved also in preparation of various other information systems belonging to individual ministries and central organs as e.g. regarding an Integrated System of Public Administration belonging to the Ministry of Internal Affairs, that is supposed to serve in the on line mode of communication in providing citizens with direct access to various public agendas as taxation, applications for passports or ID cards, driving licences, etc. By the Act 183/2000 the system of libraries has become a part of the State Information System.

However, the main problem regarding the digitalisation of the society in the Slovak Republic still remains the same i.e. the acute shortage of funds for procurement, implementation and practical operation and utilization of all these modern e-applications. Another serious problem is that Internet services are much more expensive than in various other countries in the region, to some extent this is hampering the effort of the Slovak Republic in informatization of its society.

Further development in the informatization of society in the Slovak Republic

Currently, there has been progress in preparation of the draft of an innovated version of the Strategy of Informatization of Society in the Slovak Republic under the coordinating function of the Council of Government of the Slovak Republic for Informatics that has been dealing with all the basic aspects of the particular strategy regarding the future development in:

- Informatics education and informatization of education

- Information-communication infrastructure

- Informatization of public administration

- Research and development

- E-Business and trade

- Security and protection of digital environment.

DATABANK CONSULTING

In addition to the above, aspects of further proceedings in the informatization of society in the Slovak Republic is the various other aspects of further strengthening of the legislative, institutional, organizational, personnel, etc. provisions of the whole strategy including such measures as :

- a post of Plenipotentiary of the Government for Informatizaton of the Society in the Slovak Republic

- a National Agency for Informatization of Society in the Slovak Republic

- a Council of Government for Informatization of Society in the Slovak Republic (based on the utilization of the existing Council of the Government of the Slovak republic for Informatics with 39 members from various ministries, central institutions, academia and other organs).

9.4. Main policies in support of the development of ICT networks and high-speed infrastructure in Slovakia

The fixed telecommunication market in Slovakia is being liberalized, starting on the 1st January 2003, but Slovak Telecom, the incumbent, still has a 100% market share of voice telephony services through fixed lines. At the same time, Slovakia has not fully digitalized fixed networks, the digitalisation rate of fixed networks in Slovakia being 75% [2]. The fixed telephony is challenged with aggressive competition in the mobile market. The result is a decreasing number of fixed line subscribers (fixed lines per 100 inhabitants is 26,8 [1]) and an increasing number of mobile subscribers. Today, in each part of the country, business and private customers have access to the telephone network.

About 43.8% [1] of the households are connected to a cable TV network and 29.9% [6] are via a satellite (private dish or shared satellite dish). Some of the smaller cable TV networks have started to offer Internet access, for instance in the Kosice area.

There are attempts to start offering ADSL technology (the number of xDSL lines in Slovakia as of 1 January 2003 was 0). In addition to the incumbent, alternative providers have expressed their intention to offer this technology. However, they are handicapped as they do not posses their own access networks. Moreover, there is no unbundling regulation of fixed local networks that would directly support the provision of ADSL renting the incumbent's infrastructure.

Since 2003 the development of telecommunications has to a large extent been left to market forces, there are no direct public policies to support the development of high-speed networks. Important indirect policies of recent years include efforts to create a favourable legal framework for fair competition, and investments in upgrading the (non-commercial) national research and educational network (SANET). In 2002, SANET made a major upgrade of the network to currently 1 Gbps maximum bandwidth in the full optical fibre backbone. All universities and colleges have connection to SANET.

DATABANK CONSULTING

Regulatory framework

In 2000 under the Act on Telecommunications (195/2000), the Telecommunications Office of the Slovak Republic (TU SR, http://www.teleoff.gov.sk) was established as the regulatory body for the telecommunications market in Slovakia. And under the Act on Broadcasting (308/2000) Council for Broadcasting and Retransmission (http://www.rada-rtv.sk) was established as the regulatory body both for content regulation as well as assigning broadcasting frequencies. Thus, telecommunications and broadcasting are now regulated by two different authorities.

Examining the telecommunications market structure in Slovakia, at the beginning of February 2003 there was no competition between operators offering xDSL (as there were none) and cable-TV networks as the main providers of broadband access to households and companies. If other network providers (e.g. satellite operators, electricity supply companies) will enter this market remains unclear.

Commencing 1 January 2003, carrier selection or pre-selection options should be introduced in Slovakia pursuant to the Act on telecommunications. At the beginning of 2003, Telecommunications Office of the Slovak Republic was involved in the negotiations with interested parties trying to implement carrier selection and pre-selection. The parties included association of competitive operators, Slovak Telecom and both mobile operators. After finishing these negotiations, it is expected that these carrier options (carrier selection first) will be available sometime during 2003. Number portability pursuant to the Act on telecommunications is to be introduced starting 1 January 2005.

Mobile communications

The liberalization of the telecom markets has led to a boom in mobile communications in Slovakia beyond any expectation. The diffusion rate is 54%, of which 18% post-paid, and 36% is pre-paid [6]. Percentage of coverage of population by radio signal of public telephone service is 98% [1]. Two operators have been granted licences either in the GSM 900 and/or DCS 1 800 frequency range; Eurotel (the off-spring of the incumbent Slovak Telecom, joint venture of Deutsche Telekom AG (51%) and Atlantic West consortium (49%), mobile telecommunications market share - 44,5%) and Orange (64% France Telecom, 36% private financial investors and European Bank for Reconstruction and Development, mobile telecommunications market share - 55,5%) [5]. The upgrading of the mobile networks lies within the responsibility of the operators. Two companies (Eurotel and Orange) have been granted UMTS licences on 28 June 2002 by beauty contest; the latest date for starting providing UMTS services has been limited by the regulator to 2006.

Fixed networks

As of February 2003, 14 national licences and one regional licence [5] for fixed voice telephony and 35 for leased lines licences [5] have been issued by the regulator. Regulations for unbundling the local loop are not in place yet.

DATABANK CONSULTING

9.4.1.   Bibliography

1) Slovak Republic - Telecommunication Sector. MDPT SR 2002. GSM Population covered as of 30 June 2002.
2) 2nd Report (IBM) on Monitoring of EU Candidate Countries (Telecommunication Services Sector) 2002. Data as of 30 June 2002.
3) Taylor Nelson Sofres Sample survey: itMonitor Internet at business sector 1/2002. 28 Feb – 21 March 2002. http://www.tnsinteractive.sk/.
4) Statistical office Slovak Republic. Census of population, houses and flats of Slovak Republic to 26 May 2001.
5) Telecommunications Office of the Slovak Republic, http://www.teleoff.gov.sk/. Mobile telecommunications market share as of 30 October 2002.
6) Statistical Office Slovak Republic. Satellite households as of 2000. Mobile diffusion rate as of 31 December 2002.
7) INFOSEM 2002 Seminar Proceedings, INFOSTAT – Institutute of Informatics and statistics, Bratislava November 2002
8) Politics of Informatization of Society in the Slovak Republic, Ministry of education of the Slovak Republic, (In Slovak), Bratislava, June 2001
9) Web sites of several government institutions as quoted in the text of the Report.

DATABANK CONSULTING

10. Slovenia

10.1. Political awareness to information society issues and eEurope in Slovenia

Slovenia has a relatively good ICT infrastructure, including PC penetration, which is almost the same as EU average from mid 1990's[56]. However, due to falling behind in recent ICT developments[57], because of unbalanced investment structures in ICTs, the Government of Republic of Slovenia (RS) instigated (fall, 2000), as a great developmental importance, the goals of the Information Society (IS). As a consequence the Ministry of Information Society (MID, eng. MIS) was established in January 2001. The issues of IS are also included in *National Development Plan of RS 2001-2006* (DRP RS 2001-2006, eng. NDP RS 2001-2006, adopted in December 2001; link) as the horizontal priority development task.

In the past the Government of the RS has allocated the majority of funds in this area to the ICT infrastructure of public administration. This meant indirect benefits for the citizens, yet still did not significantly affect the acceleration of e-Commerce in the economy and public sphere, or increase in the access and the interest for IS services. One of the most exposed issues in past years has been the deregulation of telecommunication market, which was – despite many discussions – relatively slow.

10.2. The national context for the implementation of eEurope in Slovenia

In October 2002 the Government accepted the strategy for the implementation of Information Society, which was prepared by the MIS and summarized in the strategic document *Republic of Slovenia in Information Society*. The strategy is based on the eEurope+ 2003 Action Plan, adopted by candidate countries at the Göteborg summit in June 2001. The purpose of the *RS in IS* is to define measures in order to achieve the EU level of IS by the year 2006 for the main objective areas:

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[56] PC penetration in households in 1995: 10% (SI) vs.14% (EU); 2001: 27.6% (SI) vs. 31% (EU) – source: Sicherl 2001
[57] For example: Slovenia has been behind EU in Internet penetration since 2000.

DATABANK CONSULTING

- The increase in the access to ICT infrastructure, with the provision of proper regulative framework;
- The innovative identification and the formation of new market opportunities with the incorporation of R&D initiatives. The acceleration of the cooperation between research institutions and the ICT economy;
- The provision of the conditions for the development of "intellectually intensive" businesses (ICT industry);
- The use of ICT in educational institutions by teachers and students. The introduction of properly adjusted and supplemented interdisciplinary learning content connected to the developments in IS on all levels of the educational process;
- The provision of the access to the services of IS for all, training and creation of new modes of work;
- The formation of the digital content on the cultural and broader social field in order to preserve cultural heritage and the language;
- Intensive introduction of e-services in public administration and the provision of the e-Commerce between public administration and the citizens/economy; 8.) The introduction of e-Business within the local administration; 9.) The reduction of digital divide with the provision of inclusion of all citizens, above all of those representing marginal or socially excluded groups or groups with special needs within the labour market.

The strategy *Republic of Slovenia in Information Society* cannot be conceived as the work plan of MIS only, although the MIS has the management and implemental role. For that reason the financing for the accomplishment of the objectives set up in the strategy does not go only through the financial instruments of the MIS. The responsibility for carrying out measures is also distributed among several ministries and departments, depending on main objective areas:
1: MIS, ATRM (Agency of Telecommunication, Radio diffusion and Mail of RS), ARNES (Academic and Research Network of Slovenia);
2: MESS (Ministry of Education, Science and Sport), MIS, ME (Ministry of the Economy);
3: CCIS (Chamber of Commerce and Industry of Slovenia), ME, MIS, MF (Ministry of Finance);
4: MESS, MIS;
5: MIS, MLFSA (Ministry of Labour, Family and Social Affairs), ME;
6: MK (Ministry of Culture), MIS;
7: Public Relations and Media Office, MIS;
8: MI (Ministry of the Interior), MIS, Public Relations and Media Office, CI (Centre for Informatics within the Government of RS);
9: MIS, MC, MLFSA,

DATABANK CONSULTING

10.3. Commitment to introduce e-services

E-Commerce

In February 2001 the CI (Centre for Informatics within the Government of RS) prepared the strategy for e-Commerce in public administration called *The e-Commerce in public administration of the RS for the period from 2001 until 2004* (SEC-2004, eng. SEC-2004; link). SEC-2004 takes into account the Banngemann's Report, the White Book by Al Gore[58], the Bonn Declaration[59], the Lisbon Declaration[60] and the Blue Book[61]. The purpose of SEC-2004 is defined from two viewpoints: informational and institutional. Informational viewpoint refers to the definition or renewal of global frameworks (aims and starting points) of development, operation and opening of all the information system of public administration of the RS. Institutional viewpoint embraces all the state organs and certain institutions of public administration of the RS. Progress after the adoption of SEC-2004 in e-Commerce area: adoption of key legislation that enables electronic commerce, such as ECESA, PDPA, APA, ATA; development and introduction of some essential administrative procedures for the issuing of certificates from key public-legal registers, which represented basic arguments for complex administrative or public-legal procedures respectively; established effective mechanisms for security and protection of data and transactions; established institutions SIGOV.CA[62] (link) and SIGEN.CA[63] (link) or public key infrastructure (PKI) respectively (source: AP-2004; link). Despite clear directions and objectives of SEC-2004, great progress in the area of technological infrastructure and key legislation, the implementation of the strategy is not satisfactory and efficient, due to the lack of content and e-services.

One pilot project within the CCIS (Chamber of Commerce and Industry of Slovenia) for acceleration of e-Commerce in economy is currently being undertaken. CI is cooperating in the project as a partner. The purpose of the project, called "*e-slog*", is to acquaint and train Slovenian enterprises for e-Commerce based on common standards. The goals are the preparation of standard documents for e-Commerce between enterprises on the Internet, the protection of e-Commerce, and the combination of multiple technological solutions for broader application. The first phase of the project has already produced practical results by developing XML account applications, the manual for the use of digital certificates etc. (link in Slovenian language).

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[58] E-Commerce of SME's – White Book, joint proposal of EITIRT, European Comisson and Lyon, 5.-6. March 1997
[59] Ministerial Declaration – Bonn Declaration, Ministerial conference on global information networks, Bonn, 6.-8. July 1997
[60] Information Society for All eEurope, Lisbon, 23.-24. March 2000
[61] Slovenia as Information Society – Blue Book, Slovenian Association INFORMATIKA, Ljubljana 2000
[62] Slovenian Governmental Certification Authority
[63] Slovenian General Certification Authority

DATABANK CONSULTING

E-Government

In October 2002 the Government of the RS issued *Action Plan of E-Government up to 2004* (AP-2004; link). The Action Plan derives from the adopted strategy SEC-2004 and its objectives are in accordance with the *eEurope 2002 Action Plan*. AP-2004 defines the objectives, e-services, and tasks for the implementation of e-Government up to 2004, and determines the mechanisms for implementation and monitoring. AP-2004 pursues, primarily, the following strategic objectives: to accelerate development and the introduction of e-services for residents or citizens, business subjects, and other associations in key areas of the Slovenian public sector up to 2004; to assure professional bases for decisions to be made in case of eventual changes, additions, or (other) connections between existing programmes or projects; to consolidate and to assure co-operation and co-ordination among ministries and other responsible administrative bodies and institutions, competent for the development of E-Government; to consolidate and optimise the expenditure of financial and other resources for the informatisation of public administration functions; to assure quantitative and qualitative benchmarking of achieved development with other EU countries and Candidate Countries, based on internationally harmonised indicators (which derive from documents e-Europe and e-Europe+); to define control points and indicators, which will enable the Government of the Republic of Slovenia to monitor progress and to take certain efficient measures, if necessary; to harmonise, connect, and integrate public-legal registers, records, and other important data collections, and to prepare multi-purposeful support for public administration functions (source: AP-2004).

The Government has already started one project for the implementation of e-Government: "*e-uprava*". The project started in March 2001 under the management of CI and on the basis of SEP-2004, with the budget of 50 MSIT (~230.000 EURO). "*E-uprava*" (link) is an Internet portal providing variety of information related to the Government of the RS, intended for citizens, enterprises, employee in public administration, and institutions in public administration.

e-Education

The introduction of ICTs and the Internet into educational process had begun in the mid 90's, with the RO (*Računalniško Opismenjevanje*, engl: *Computer Literacy*) project and ARNES (Academic and Research Network of Slovenia) services. The RO project was implemented on the basis of the ZZSNN[64]. Slovenia adopted in 2002 the *Act on Basic Developmental Programmes in the Areas of Education and Science in Years 2003-2008* (ZTRPIZ)*,* which also defines the activities connected to ICT Literacy. These activities can be considered as the continuation of the RO, which ended in 1999. The budget allocated for ICT literacy programmes for defined period will be ~117 MEURO. From 2000 till the adoption of ZTRPIZ, MESS had been providing funds for the support of ICT infrastructure and usage in educational institutions. However, Slovenia is still lagging behind in the number of computers per student (RIS 2001, in Slovenian language). At the same time the realization of the pedagogic process is not sufficiently supported by ICT, which increases the digital divide between the EU and Slovenia. Slovenia has currently only one e-Learning programme in the tertiary level of education. The programme has been performed by DOBA (link) for the last three years. DOBA is the largest private provider of educational programmes and training programmes for youth and adults in Slovenia.

In 2001 the MIS and MESS started the pilot project "*e-šole*" (*e-schools*), within the larger project "*e-točke*" (e-points/PIAPs). The project aims to reduce the digital divide with the provision of access to the Internet for all, using the ICT infrastructure in primary and secondary schools. It is also aimed

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[64] Act on the Provision of Means for Neccesary Developmental Programmes of RS in Education and Training, 1994

DATABANK CONSULTING

at increasing ICT literacy, since it is providing the guidance for less- or non- ICT literate. The Government spent on the project 137 MSIT (~600.000 EURO) in 2001-2002 (link in Slovenian language).

e-Health

In September 1995, the Health Insurance Institute of Slovenia, in conformity with the European and global development trends, and with its own business goals, defined the plan of substituting the health care identification booklet for a modern, computer-readable document - health insurance card. The objectives of the *Health Insurance Card Project* (HICP) were to improve the quality of services and of treating insured persons both at the Institute and by other health care service providers; to simplify and improve communication between the Institute, the physicians and health care institutions; to cut down the number of various (unnecessary) procedures now required when the insured person implements their rights; to improve the security of personal data within the information processing systems; to reduce the extent of administrative tasks and thereby achieve a higher efficiency of operations at the Institute and within the health care service; with reasonable financial investment, to provide long-term economic benefits at the level of the national economy (source: HSMP – Project Implementation Plan).

In 1997 the project PRIMACOM[65] was launched, within the INCO COPERNICUS Programme. The aim of the project was to supply health care professionals with systems and infrastructure for enhancement of communication between primary and secondary care – so-called Regional Health Care Networks or Community Health Information Networks. The main task of the project was to establish and evaluate pilots in two Eastern European countries, Slovenia and Hungary. The pilots upgraded the infrastructure and established direct communication between hospitals and Primary Care General Practitioners in Primary Health Care Centres. In the second phase of the project the software was adjusted to use European communication standards (EDIFACT) and electronic mailboxes were established (source: HSMP – Project Implementation Plan).

MH started in 2001 the project HSMP (Health Sector Management Project, link). The main project goal is to secure long-term stability of the health system and to found its management on provable and verifiable data focussed on the patient. The project is divided into four components: health policy support; health information standards formulation; health information system implementation; project management & professional support. The budget for the project is 13,8 MEuro in the period 2001-2003 (phase 1) and 16,2 MEuro in 2004-2006 (phase 2).

Participation for all

The MIS launched in 2001 the project called "*e-točke*" (e-points, which refer to the PIAPs: link). E-points are currently divided into four types of PIAP-s:
- e-šole (e-schools)
- e-kavarne (e-cafés)
- e-knjižnice (e-libraries)
- other PIAP's

Their intent is to provide the access to the Internet to the broader public, whether for free (e-šole, e-knjižnice) or against payment (e-caffe). The web site http://e-tocke.gov.si is designed dynamically, where participants can apply their e-points through the application form. Till December 2002, over 200 PIAP's were investigated.

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[65] Primary care Physicians' Communication Network

DATABANK CONSULTING

10.4. Main policies in support of the development of ICT networks and high-speed infrastructure in Slovenia

The current picture of ICT in Slovenian households shows that about 52% of the households are connected to a cable TV network, and 24% satellite dishes (RIS, June 2002). According to the RIS data, 37% of households have access to the Internet. Households are mainly connected to the Internet with the analogue modem (70%), followed by ISDN (17%). An increase in fast connections to the Internet was observed in June 2002, notably in ADSL (2% in 2002) and cable access (7% in 2002). According to Flash Eurobarometer (June 2002, link), Slovenia lags behind in ADSL access (EU average is 10%). Internet providers and cable TV networks offer Internet access in the areas where the cable infrastructure meets the requirements. The competition in the field has already provided lower prices for cable Internet. SIOL, the Internet subsidiary of Telekom Slovenia, offers ADSL at a download rate of 4Mbit/s and is basically the only ADSL provider. Currently, the largest Internet provider, SIOL, holds the large majority of the market, and through the past years many of small providers often complained to its monopolistic behaviour.

Main policies defining the future development of ICT can be found in NDP RS 2001-2006 and the strategy *RS in IS*. The documents are harmonized with eEurope+ 2003 Acton Plan. NDP RS 2001-2006 defines the programme *Information Society,* which is further elaborated in the *RS in IS*, and its sub programmes are specifically dealing with high-speed infrastructure. The Government will allocate 168 MSIT (~770.000 Euro) annually up to 2006 for the provision of fast Internet connections to kindergartens, primary schools and secondary schools. For basic Internet connections to kindergartens, primary schools and secondary schools, the Government has allocated 33 MSIT (~150.000 Euro) in 2002. The Government is currently performing the pilot project *e-vas* (e-village) for the reduction of digital divide in one rural area, with the provision of broadband multimedia applications. The project will be extended to all rural areas in Slovenia with the budget of 300 MSIT annually (~1.4 MEuro).

MESS almost entirely financed ARNES (Academic and Research Network of Slovenia) in 2001 (3 MEURO) on the basis of the *Act on foundation of public institution ARNES*. In the same year Slovenia joined GEANT through ARNES, with two 310 Mbit/s connections. In the middle of 2001 the Government signed the contract with Telekom Slovenia, which provided additional discounts for ARNES clients (MESS, September 2002, link in Slovenian language).

Regulatory framework
In April 10th 2001 the new Telecommunication Act (ZTel-1) was adopted. The Telecommunication Act (link) brings to end the reform of telecommunication services market and sets up the legal frame for the harmonization of the field with the EU legislation. The purpose of the Act is to ensure competition on the market for telecommunications services and to facilitate reliable telecommunications services; to ensure universal telecommunications services for all at an accessible price; to protect the interests of users of telecommunications services including the safeguarding of confidentiality in telecommunications; to ensure and promote efficiency and competition among operators; to ensure efficient use of the radio frequency spectrum and telecommunications numbering system; to exploit emerging technology; to protect the interests of national security and defense of the realm (source: ZTel-1).

In accordance with the Telecommunication Act (ZTel-1) the Agency for Telecommunication and Radio diffusion of the RS was established (July 2001: link in Slovene language). The Agency is an independent organization responsible for the management and control of the activity on telecommunication market, as well as for the radio frequency spectrum of the RS, for the performing of specific tasks in radio/television activities area, and tasks related to accreditation organ for digital signature.

DATABANK CONSULTING

To harmonize the legal framework for electronic commerce with the eEuropa+ 2003 Action plan, Slovenia adopted and implemented in June 2000 *Electronic commerce and Electronic Signature Act* (ZEPEP; link)*.* The Act is also entirely adjusted with the provisions United Nations–Commission or the International Trade Laws (UNCITRAL) Model Law of the electronic commerce and with the provisions of the primary European legislation.

Mobile communications
The rapid growth in mobile phone usage began in 1998 (see link). By the year 2001 a diffusion rate of more than 75 subscribers per 100 inhabitants ranks Slovenia among the first 8 countries in Europe (link in Slovene language). Four operators have been granted licences either in the GSM 900 and/or DCS 1 800 frequency range since 1996: Mobitel (the first mobile operator, market share: 74%[66]), Debitel (in 1998, 6%) Si.mobil (in 1999, 20%), and Western Wireless (in 2001). One company (Mobitel) has been granted UMTS licences in November 2001 by way of auctioning. The market launch of UMTS services is expected for 2003.

Innovation and research policies
"Data on investment in science and technology (1.48% in 1998) points to a low level of this type of expenditure. In terms of the percentage of GDP used for research and development Slovenia is behind the USA (2.55%), the OECD average (2.15%) and the EU average (1.85%)" (NDP RS 2001-2006). Therefore NDP RS 2001-2006 defines the programme *Knowledge for development*, which will be carried out within four following measures: 1.) Creation and use of knowledge; 2.) International co-operation in research and development activities; 3.) »Knowledge-Based Society«; 4.) R&D networking programmes supporting the development of Slovenia – "NDP 2001-2006". The goals of the programme are – among others – to gradually allocate more funds to research and technology development priorities, and the provision of faster transfer of knowledge from the research sector to companies and the public. The budget for the programme will be 395 MEuro (2001-2003), and 706 MEuro (2004-2006).

10.4.1. Bibliography

1) Eurobarometer – FlashEurobarometer: Internet and Public at Large, June 2002
2) FDV, Centre for Methodology and Informatics, RIS (Research on Internet in Slovenia): Internet Usage – Households, December 2002.
3) FDV, Centre for Methodology and Informatics, RIS (Research on Internet in Slovenia): Internet Providers 2002, GPS (CATI), June 2002
4) FDV, Centre for Methodology and Informatics, RIS (Research on Internet in Slovenia): Mobile Telephones 2001, GPS (CATI), June 2001
5) FDV, Centre for Methodology and Informatics, RIS (Research on Internet in Slovenia): Schools 2000/2001
6) Ministry of Education, Science and Sport: The Report on Financing the Research Activities from State Budget of RS in 2001, annual report
7) Ministry of Health: Health Sector Management Project – Project Implementation Plan,
8) Ministry of Information Society: Comparative Analysis of Information Society Indicators, December 2002
9) Ministry of Information Society: eEurope+ implementation activities in Slovenia, October 2001
10) Ministry of Information Society: E-šola
11) Ministry of Information Society: The Strategy of Republic of Slovenia in Information Society, October 2002

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[66] June 2001

DATABANK CONSULTING

12) Slovenian Government - Centre for Informatics: The e-Commerce in public administration of the RS for the period from 2001 until 2004 (SEP-2004), February 2001
13) Slovenian Government: Action Plan E-Government up to 2004 (AP-2004), October 2002
14) Slovenian Government: Electronic commerce and Electronic Signature Act (ZEPEP), June 2000
15) Slovenian Government: National Development Plan (NRP RS 2001-2006), December 2001
16) Slovenian Government: Telecommunication Act (ZTel-1), April 2001
17) Slovenian Government: The Resolution on the foundation of the Agency for Telecommunication and Radio diffusion of RS, July 2001

DATABANK CONSULTING