SIBIS

Hungary

Country Report No.4

No.4

Information Society
Technologies

European Commission

Preface

This report represents an important deliverable of the project 'Statistical Indicators Benchmarking the Information Society' (SIBIS), running from January 2001 to September 2003 and funded by the European Commission under the 'Information Society Technology' Programme. The overall goal of SIBIS is to develop and pilot indicators for monitoring progress towards the Information Society, taking account of the 'e-Europe action lines'. On this basis SIBIS focuses on nine topics of interest, i.e. Telecommunications and Access, Internet for R&D, Security and Trust, Education, Work-Employment and Skills, Social Inclusion, e-Commerce, e-Government and e-Health. This report is part of an extension of the SIBIS project 'SIBIS+: Statistical Indicators for Benchmarking the Information Society in the NAS: The eEurope + Indicators'. The objective of SIBIS+ is to geographically expand the SIBIS activities from the EU Member States to the Newly Associated States.

Within this part of the SIBIS+ project a General Population Survey (GPS) was conducted in January 2003 on five of the nine topics: Telecommunications and Access, Social Inclusion, Education, Work-Employment and Skills and e-Government. Although limited in their scope, some questions have been asked for two other topics, Security and Trust and e-Commerce, as well. The document has two main objectives, namely to be a support tool for views shared by experts in the area and, at the same time, to define indicators for quantifying some of the most critical indicators related to the five topics.

The report is organised in ten chapters. The first three chapters are designed to give the reader an idea of the main outcomes (Executive Summary) and the context (introduction to the country and the topics). The core of the report is the analysis of indicators, provided in chapters 4 to 9. Those chapters focus on an analysis of ICT infrastructure and security issues, e-society and social inclusion, the e-economy, e-education, e-work and e-government. Important findings are presented in the body of the document and additional data is shown in the annex.

The intended audience are policy makers and statistical offices at all levels (national, and supranational), industry leaders and researchers in the domains and those involved and interested in benchmarking the domains throughout Europe and the world. Those institutions should consider the questions and the subsequent indicators developed by SIBIS as an input for their yearly surveys. The project includes a series of workshops with such institutions in the countries represented by the SIBIS consortium. The report should also be of interest to the European Commission (in particular DG INFSO) and to government officials dealing with information society programs.

Within SIBIS+, another report (WP2) has been developed during 2002/2003. This report was aimed at setting the scene on the topics, identifying existing indicators for the several topics that already exist in Hungary and defining the gaps in the statistical coverage.

SIBIS is led by Empirica (Germany), and includes the following project partners: RAND Europe (The Netherlands), Technopolis Ltd. (United Kingdom), Databank Consulting (Italy), Danish Technological Institute (Denmark), Work Research Centre Ltd. (Ireland), Fachhochschule Solothurn Nordwestschweiz (Switzerland), University of Ljubljana (Slovenia), ASM Market Research and Analysis Centre (Poland), Budapest University of Economic Sciences and Public Administration (Hungary), Faculty of Management of the Comenius University Bratislava (Slovakia), "Dunarea de Jos" University (Romania), Institute of Economics at the Bulgarian Academy of Sciences (Bulgaria), Estonian Institute of Economics at Tallinn Technical University (Estonia), Social Policy Unit (Sozialinnen Politicus Group) (Lithuania), Computer Science Institute of the University of Latvia (Latvia), SC&C Ltd. Statistical Consultations and Computing (Czech Republic).

The Department for Sociology and Social Policy of the Budapest University of Economic Sciences and Public Administration is performing regular educational activities. Besides the Department is a workshop of research in the following fields: Information Society, Social Indicators, Poverty and Ethnicity, Social Inclusion, Small Business Development, Social Deviance, Gender Studies. The Department performs regular surveys, field studies and experiments on The Department for Sociology and Social Policy of the Budapest University of Economic Sciences and Public Administration of Information Technology on local and regional development.

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CONTENTS

1.   Executive Summary

In January 2003 in ten Central European countries a representative population survey was conducted on Information Society. This study has the aim of interpreting the results of this survey by comparing them with strategies and actions of various public policy areas of the Hungarian Government. Info-communication policy, educational and labour policies have jointly contributed to the fact that the development of Hungarian Information Society has reached the level of the Central European average in some dimensions and missed this average in other dimensions.

Telecommunications and Access. Info-communication infrastructure development in Hungary has been a joint result of private sector development and Government efforts. The planning and implementation of Hungarian ICT policies date back to 15 years.

According to the Survey, the availability of ICT (Information Communication Technology) infrastructure to the Hungarian population corresponds to the Central European average with the notable exception of mobile telephony – in this dimension the Hungarian penetration value has greatly exceeded the average of the region. Hungarian consumers began using the Internet earlier, but the proportion of regular Internet users nowadays is lower than the Central European average. (Regular user: has used the Internet in the last 4 weeks)

e-Security. Hungary has issued a Law on electronic signature in 2001 and some service providers have begun to offer authentication services according to this Law.

According to the Survey, on average, Hungarian Internet users are much less worried about Internet security than the respective averages of Central Europe. The longer a person has been an Internet user, the bigger the likelihood that he or she has serious fears over Internet security. In the whole Central- European region, and in particular in Hungary as well, people are more concerned about dangers posed by the Internet to their privacy than about dangers related to safety, manipulation or loss of their data. In Hungary on-line shopping of women is less frequent than that of men, but women are more concerned about safety dangers of Internet based purchasing than men. Women are also less aware of the safety status and risks of various websites.

e-Society and Social Inclusion. ICT strategies and policies of the Government aim at providing equal opportunities to all citizens. In particular, efforts have been made to offer access to citizens living in remote and less developed regions by building a network of so-called 'Tele-houses' and by offering various ICT-related subsidies to local governments located in these areas within the framework of regional policy. Other, more recent programmes have aimed at developing digitally initiated dialogue between students of ethnic minorities and students belonging to the majority.

According to the Survey, the proportion of regular Internet users is smaller in Hungary than in the other surveyed Central European countries. However, regarding the proportion of regular Internet users Hungary lags behind the surveyed Central European countries also within the groups of (a) employed people (b) unemployed people (c) people employed by private firms (d) people employed by public organisations (e) persons who have already finished their education. The only exception from this rule is the group of people participating in education: within this stratum the Hungarian indicator is more favourable than the Central European one. Differences in Internet usage between genders in Hungary are not greater than it can be observed in the averages of the 10 Central European countries under investigation. In Hungary the frequency of Internet usage is even more dependent on the level of education than it is the case in Central Europe. In other words, the Hungarian digital gap separates more the qualified from the unqualified than it would be expected on the basis of the Central European average.

e-Education and Life-long-learning. Recent education strategy documents published by the Hungarian Government highlight that the structure of education in Hungary does not match the needs of the labour market and that it does not lay down the bases of lifelong learning. International comparative studies have also shown that the Hungarian educational system improves Information Technology (IT) skills less than in most OECD countries. Although higher education maintains a widespread network of distance education, public and vocational education still lags behind. The major e-Education programme 'Sulinet' has developed a popular Hungarian teaching portal and offered infrastructure and access to 99% of the secondary schools and 20% of the elementary schools. Despite government efforts, in Hungary distance education supported by IT means is at its beginnings.

According to the Survey, judged by their self-estimation, knowledge of computer and Internet using techniques among Hungarian Internet users is on a lower level than in Central Europe. Computer usage skills of female Internet users fall behind male Internet users' skills both in Hungary and Central Europe, although this gender gap is narrower in Hungary than in Central Europe. Internet usage skills among Internet users correlate positively with the level of education in the whole region, but in Hungary this dependence is stronger than the average dependence of the in whole region.

e-Economy and e-Commerce. Electronic commerce is developing in Hungary with a rather slow pace. Lack of trust in electronic commerce, and especially in electronic payment, in the seriousness of web based advertisements and commercial services, lack of know how, the poor usage of tools and the lack of the culture of online 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. Electronic marketplaces have not been extensively used in Hungary.

According to the Survey, Hungarian users buy products on the Internet with same weak intensity as the Central European average: during the last year, only 13% of Hungarian Internet users have purchased on-line (Central Europe: 14%). Among these persons the 25-49 age group and men are over-represented both in Hungary and in the whole of Central Europe. However, some 65% of Hungarian Internet users have used the Internet for obtaining information on products or services before purchasing (Central Europe: 61%).

e-Work. Hungarian employers who are investing into the training of their employers are eligible to a special type of tax break. In the year 2001, about one fifth of the employees took part in some kind of training. In-company training of employees is typical for big firms but less typical for medium-sized firms, and this involves more and more usage of distance learning and e-Learning. However, spending on workers' training is not typical for small companies, where the majority of employees work. About one sixth of the unemployed participates in labour-market-oriented training. IT related vocational training courses are offered not only by many public schools and universities but also by free market firms and there is an oversupply of IT training opportunities, including ECDL type trainings.

According to the Survey, the encouragement of the employees for in-company training is weak in Hungary. In Hungary few employees perceive their working places where they have to learn continuously. Hungarian employees show less initiative than the Central European average when taking self-training into consideration. The potential of distance working in Hungary is weaker than the Central European average.

e-Government. Although the National Development Plan of 2003 and the recently established Ministry for Informatics and Telecommunication attaches a very high priority to the development of online Government services, the performance of this sector is still at the overall level of Central Europe. Publicly financed institutions spend substantial amounts on ICT development, but online Citizen-to-Government relations still focuses on providing information to the citizens. As of the Business-to-Government relations, companies have filed a dynamically growing number of tax returns to tax authorities.

According to the Survey, the usage of e-Government applications in the surveyed 10 Central European countries, and in particular in Hungary, is rather an exception than a rule.

2.   Introduction

2.1   Background

Statistical Indicators Benchmarking the Information Society (SIBIS) is a project funded under the 'Information Society Programme' of the European Commission (IST-2000-26276). SIBIS, which runs from January 2001 to September 2003, has taken up the challenge of developing innovative information society indicators to take account of the rapidly changing nature of modern societies and to enable the benchmarking of progress in European Union (EU) Member States. The indicators have been tested and piloted in a representative survey held in 2002 in all EU Member States, Switzerland and the United States. As a result, nine Topic Reports assessing the current state of the European information society and benchmarking individual countries have been published in 2003. The topics covered by SIBIS include: telecommunications and access, Internet for research and development, security and trust, education, work- employment and skills, social inclusion, e-Commerce, e-Government and e-Health.

In 2003 the SIBIS project has been extended with the SIBIS+ initiative. The objective of SIBIS+ is to geographically expand the SIBIS activities from the EU Member States to the following Newly Associated States (NAS): Slovenia, Poland, Slovakia, Hungary, Czech Republic, Bulgaria, Romania, Estonia, Lithuania, Latvia. This parallels the extension of eEurope to eEurope+, an Action Plan by and for the candidate countries.

This report analyses the results of the surveys conducted in the ten NAS countries in 2003. In order to produce comparable results, the survey questions have been extracted from the surveys conducted in the EU member states in 2002.

2.2   Country and Topic Areas

The SIBIS Project (Statistical Indicators for Benchmarking Information Society) aims at creating a survey instrument to assess the development of the target groups of the ambitious Information Society development policies of the European Community. Up to the present period this research was confined to EU member states, Switzerland and the US, but in 2003 the EU-applicant Central European countries were involved too (NAS: Newly Associated States). Most of these countries have harmonised their info-communicational politics with that of the EU to a certain extent, thus the SIBIS General Population Survey (GPS) 2003 for the NAS can serve to position the achievements of these countries within the contexts of the present and future EU member states. The SIBIS Project also aims to harmonise and enrich the statistical measurement of the diffusion of information technologies and the relevant social processes.

The SIBIS General Population Survey, (GPS) conducted in January 2003, asked approximately 10 thousand persons - roughly 1000 per country in ten countries of Central Europe, 15 years and older about
- 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.

In order to produce comparable results, the research has used uniform questionnaire and sampling method in the ten Central European surveyed countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Rumania, Slovakia, Slovenia). Throughout the study the set of these countries is called NAS or Newly Associated States. The database of the survey contains about 160 variables. In Hungary the inquiry was performed by Median Ltd. and the research tasks were performed by the Budapest University of Economic Sciences and Public Administration, Department of Sociology and Social Policy.

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.

Some Hungarian research antecedents. In Hungary there are many recent surveys on this subject, some of them relying on larger national sample sizes than that of SIBIS[1]. Recently the research institutions ITTK and TÁRKI conducted a Hungarian version of an international survey named 'World Internet Project'. The survey was extended in 2001 to 5032 persons older than 14 years and in a panel-like continuation in October 2002 to 3763 persons (ITTK-TÁRKI 2002).

Academic research using mixed methods. Research on Information Society is also being conducted by using a combination of quantitative and qualitative methods. This approach is especially useful in the deep exploration of the development of local Information Society in smaller sub-regions (Lengyel 2002, Lang-Letenyei-Siklos 2003, Lorincz 2003). This approach can involve questionnaire based surveys, focus groups, in-depth interviews and, recently, even experiments: researchers lend computers and finance Internet access for some families in a little village, and as an exchange, families help to register the diffusion patterns of ICT knowledge in the local community (Futó 2002).

Market research. Many market research studies were made on behalf of Hungarian ICT enterprises (see SIBIS WP4 Background Study, 2003). As a rule, the detailed results of these studies are available only for the clients of the research (e.g. Bell Research 2002, GKI 2002, GFK 2002 and others).

2.3   Overview of the Report

The Report starts with some general information about Hungary. In Chapter 4 we provide insights about the development of ICT Infrastructure and Security in the last decades, in particular on Telecommunications and Access and on e-Security. In the following Chapters various application fields of Information and Communication Technology are described in light of the SIBIS results, such as e-Society and Social Inclusion, e-Education and Life-long-learning, e-Economy and e-Commerce, e-Work and e-Government.

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[1] For a list of these studies see SIBIS WP4 Background Study, 2003

3.   General Information about the country

Recent history. During the 1980s Hungary led the movement to dissolve the Warsaw Pact and steadily shifted toward multiparty democracy and a market-oriented economy. Following the collapse of the USSR in 1991, Hungary developed close political and economic ties to Western Europe. It joined NATO in 1999 and is a frontrunner in a future expansion of the EU: in 2004 Hungary will become a member state of the EU.

Economy overview. Hungary continues to demonstrate strong economic growth and to work toward accession to the European Union. The private sector accounts for over 80% of GDP. Foreign ownership of and investment in Hungarian firms is widespread, with cumulative foreign direct investment totalling more than $23 billion since 1989. Inflation and unemployment - both priority concerns in 2001 - have declined substantially.

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Table 1 - General information on Hungary

Subject	Information
Area	93,030 sq km
Capital	Budapest
Population	10,075,034 (July 2002)
GDP at purchasing power parity	$134.7 billion (2002 est.)
GDP real growth rate	3.2% (2002 est.)
GDP per capita at purchasing power parity	$13,300 (2002 est.)
GDP composition by sector	Agriculture: 4%, industry: 34%, services: 62% (2000 est.)
Inflation rate (consumer prices)	5.3% (2002 est.)
Labour force	4.2 million (1997)
Bordering countries	Austria 366 km, Croatia 329 km, Romania 443 km, Serbia and Montenegro 151 km, Slovakia 677 km, Slovenia 102 km, Ukraine 103 km
Labour force by occupation	Services 65%, industry 27%, agriculture 8% (1996)
Unemployment rate	5.8% (2002 est.)
Budget	Revenues: $13 billion, Expenditures: $14.4 billion, including capital expenditures of $NA (2000 est.)
Industries	mining, metallurgy, construction materials, processed foods, textiles, chemicals (especially pharmaceuticals), motor vehicles
Industrial production growth rate	3.1% (2002 est.)
Exports	$31.4 billion f.o.b. (2002 est.)
Exports commodities	machinery and equipment 57.6%, other manufactures 31.0%, food products 7.5%, raw materials 1.9%, fuels and electricity 1.9% (2001)
Exports partners	Germany 34.9%, Austria 8.7%, Italy 5.9%, US 5.6% (2001)
Imports	$33.9 billion f.o.b. (2002 est.)
Imports commodities	machinery and equipment 51.6%, other manufactures 35.3%, fuels and electricity 8.2%, food products 2.9%, raw materials 2.0% (2001)
Imports partners	Germany 26.4%, Italy 8.3%, Austria 7.9%, Russia 6.8% (2001)
Debt (external:)	$31.5 billion (2002 est.)
Currency	Forint (HUF)
Exchange rates	Forints per US dollar - 275.920 (January 2002), 286.490 (2001), 282.179 (2000), 237.146 (1999), 214.402 (1998), 186.789 (1997)

Source: CIA World Fact Book

Figure 1 Map of Hungary

Table 2 - Ratings of Hungary's performance in developing its Information Society

Index definition	Rank of Hungary and range of evaluated countries	Source institution	Web source
ISI, Information Society Index 2002	29 out of 55 countries	IDC (a subsidiary of International Data Group Co.)	www.idc.com www.worldpaper.com
Technology Achievement Index 2001	22 out of 72 countries	UNDP (United Nations Development Programme)	http://www.undp.org/hdr2001/pr3.pdf
Global IT IQ Ranking, 2002	52 out of 100 countries	Brainbench Co.	http://www.brainbench.com/pdf/globalitiq.pdf
e-Readiness ranking, July 2002	28 out of 60 countries (Score: 5.49 out of 10)	The Economist Intelligence Unit / Pyramid Research on e-readiness	http://www.eiu.com
Network Readiness Index	30 out of 75 countries (Score: 4.14 out of 10)	CID (Center for International Development) at Harvard University	http://www.cid.harvard.edu/cr/pdf/gitrr2002_ch02.pdf

Sources: in the last column of the Table.

4.   ICT Infrastructure and Security

4.1   Telecommunications and Access

ICT development policy. Hungarian ICT politics was born 15 years ago. An expert group assigned by the Government worked out the so-called Information Infrastructure Development Programme, which began in 1986 and ended in 1994. It was followed in 1995 by the National Information Infrastructure Development Programme, in 1996 by the National Informatics Strategy, and in 1997 by the Governmental Informatics Strategy. One of the aims of the Government programme 'Széchenyi Plan' launched in December 2000 was to modernise the country through the implementation of the so-called e-Hungary Programme. In 2003 Hungary prepared the National Development Plan, an influential document in distributing EU aid between 2004 and 2006. This document contains a chapter on ICT preparedness, policies and strategy.

Recent challenges, weaknesses. Recent governmental strategy documents on Information Society emphasise the weaknesses of Hungary in this field and focus on Hungary's lagging behind the EU average in many indicators (NFT 2003).
- *ICT expenses.* Hungarian public and private sector ICT expenditures are both in absolute and in relative terms less than the respective indicators of EU member states.
- *ICT access.* Internet penetration is comparatively low in Hungary. In 2001 10% of the population had the possibility to use the Internet – this proportion was one third of the EU average in that year. High telephone costs played a role in this situation. Most people use Internet at work or school.
- *Knowledge.* IT skills of the population are shallow. There is a shortage of IT teachers, and the average IT skills of teachers of other subjects are weak.
- *The content provision* market is undeveloped
- *Legal background.* Important legal bases of developing Information Society are missing. Due to lack of suitable legal framework, there is insufficient competition among ICT service providers. The Law on Digital Signature (XXXV/2001) is only a necessary but not sufficient condition to use this service.
- *Gaps.* There are big differences in info-communication infrastructure and service availability by regions and types of settlement: in settlements under 10 000 habitants the density of families having Internet access is one-third of the respective Budapest indicator (Bakonyi 2003); broadband access is available only in big cities.

Recent aims of ICT policies. The Ministry of Informatics and Telecommunications (established in 2002) is responsible for creating the conditions of information availability for Hungarian citizens, for the diffusion of up-to-date new appliances, learning methods, and implementations in the Hungarian society as widely as possible. It is the duty of the Minister to help the social inclusion of all strata of the society by using the methods of Information Society, in particular to support the
- spread of Internet access and digital media;
- increase of Internet and digital contents;
- wide availability of Internet accesses for every type of settlements;
- spreading of digital literacy, the diminishing of the digital gaps in the society;
- digital conservation of national cultural inheritance;
- development of the professional and legal bases of digital text and picture publication, voice and movie broadcasting;
- co-operation between actors of economy and the civil society in the interest of integration into Information Society;

- improvement and availability of ICT-supported public services, and improve the cooperation among governmental organisations.

Strategy. In 2003 the Government initiated the formulation of a so-called Strategy of Information Society. The document underlines that in the last years in Hungary the possibilities for creating an Information Society have deteriorated (IHM 2003a). The programme will be submitted by Ministry of Informatics and Telecommunications to the Government during the second part of the year, after a professional discussion involving various academic instances and interest groups. The Programme will contain sectoral strategies and will be harmonised with the EU Information Society Programme and the National Development Plan as well. (IHM 2003b). The overall aims of this strategy are the development of equal opportunities, a knowledge-based economy, human resource development, democratisation of the public sphere and spreading of innovations. Recent documents of the Programme are stating that Hungary's Information Society performance and readiness is lagging behind that of the EU and does not emerge from the Central European region (Bakonyi 2003).

Actions. The recently created Ministry of Informatics and Telecommunications has launched an ambitious subsidy programme, which aims at improving the network of common Internet access points, such as community computing centres, 'tele-houses' and libraries, giving assistance to local authorities and teachers for obtaining or improving their computer systems and Internet access, particularly in underdeveloped regions, creating the basis for e-Work, and improving the body of Hungarian digital content provision. The Ministry gives tax allowances for trainings and computer purchases, it negotiates continuously with Internet service providers and telephone companies to create schemes for reducing the fees of Internet. As a result some service provider reduced fees in March 2003. In 2003 the Government spent more than 100 billion Hungarian Forints (1 Euro=250 HUF in January 2002.) on IT developments.

Inter-ministerial co-operation. The Ministry cooperates with other line ministries in jointly controlling and financing informatical development of decentralised organisations, for example by developing the educational IT infrastructure.

Interest groups. Hungarian IT companies eagerly follow informatical improvements. The politics of informatics has to take into consideration their opinion and recommendations. (E-Hungary 2002)

The following findings of the SIBIS GPS NAS Survey 2003 give a picture on the impacts of Hungarian info-communication policies.

According to the SIBIS research, the availability of ICT infrastructure to the Hungarian population corresponds to the Central European average, with the exception of mobile telephony, where, in fact, the Hungarian value exceeds the regional average.

- *Traditional telephone.* According to the *SIBIS GPS NAS Survey 2003*, in January 2003 70% of respondents had a traditional telephone in his/her household, which corresponds to the Central European average. Recently traditional telephone subscription shows a decreasing tendency, because of mobile service providers.

- *Mobile phone.* According to the *SIBIS GPS NAS Survey 2003*, in January 2003 59% of the Hungarian population had mobile phone, which is 15 percentage points above the average saturation level of the surveyed 10 Central European countries. Hungarian mobile telephone penetration is near to the possible maximum. The relative higher concentration of mobile network in Hungary is also shown by the fact that while in Central Europe 28% of the respondents have stated that the majority of their friends and relatives have mobile phones too, the respective indicator in Hungary was 47%. Other characteristics of mobile and SMS (Short-Message-Service) usage are quite similar in Hungary and in the entirety of the region: these activities are more frequent among young age groups, and somewhat more frequent among men.

- *Services based on mobile telephone.* Above all, in Hungary mobile telephony means voice communication, although first signs of spreading of mobile content service and mobile Internet are apparent too. In Hungary every mobile service provider offers GPRS (General Packet Radio Service), MMS (Multimedia Messaging Service) and WAP (Wireless Application Protocol) services. The country reached the Western European average in WAP use, but GPRS users only in last half year appeared with substantial frequency.

- *PC availability*. In autumn of 2002 26% of Hungarian households had a Personal Computer, of which more than 50% could be suitable for Internet usage. (ITTK-TÁRKI 2002.) However, the Ministry of Informatics and Telecommunications and other Ministries are using other numbers about PC availability – according to these, in April 2003 only in 17% of the households is there a PC (Világgazdaság 2003a). As of the *usage* of PC, the SIBIS GPS NAS Survey shows no considerable difference between Hungary and the average of the examined ten countries in PC usage. 28% of Hungarian respondents and 29% of Central European respondents have reported the usage of PC in the last 4 weeks. Both in Hungary and the whole region active PC usage is most frequent amongst persons under 25 years of age, whereas the proportion of active PC users is decreasing in older age-groups. Active PC usage does not necessarily mean home PC usage, because PC usage is more frequent in school and at workplace.

- *Internet availability.* According to the *SIBIS GPS NAS Survey 2003*, in January 2003 11% of respondents had Internet access at home. This value in average of the ten countries is a bit better 11%. Results of TÁRKI research organisation have shown that in autumn 2002 only in 8%, while in autumn 2001 only 6% of households had Internet access (ITTK-TÁRKI 2002).

- *Modes of Internet access.* In the field of home access in whole region dial-up connection is the first, but in Hungary there is a substantial amount of ISDN connections too. The frequency of DSL access modes is very low. In Hungary the number of broadband accesses reaches 100,000 this year but many of them will be owned by companies and institutions.
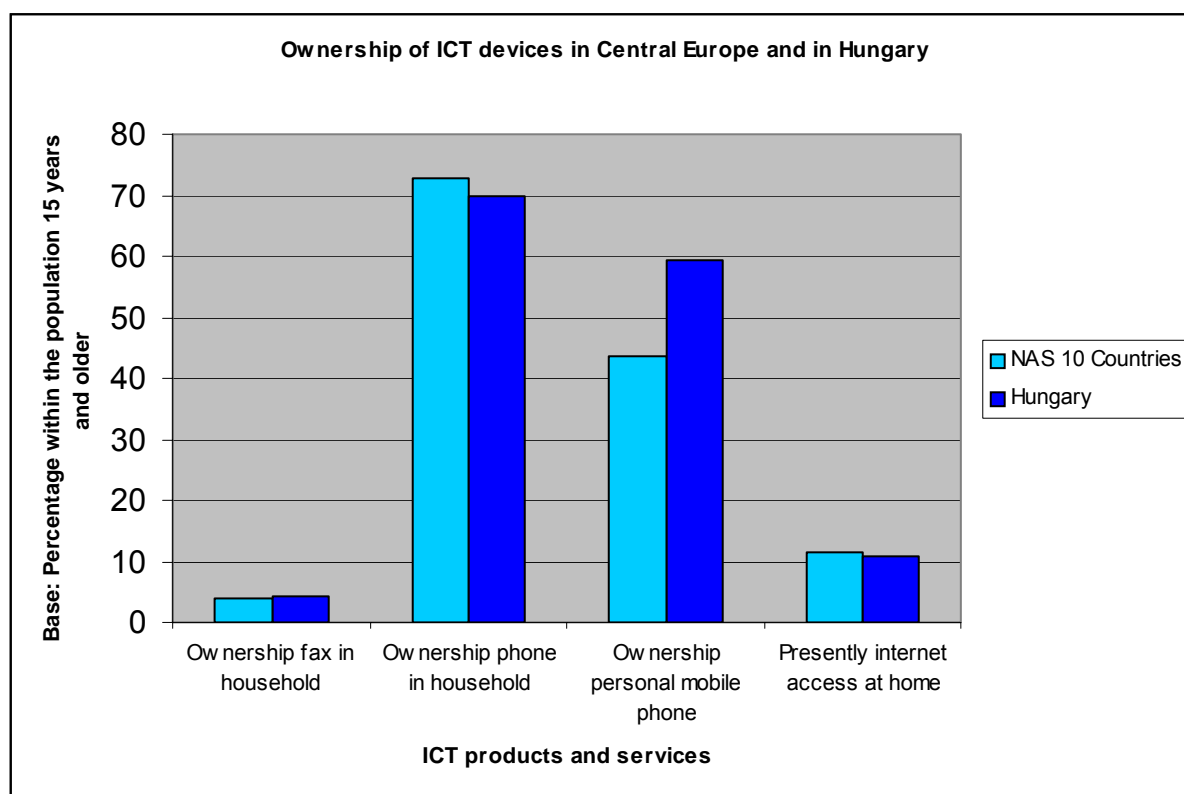
Ownership of ICT devices in Central Europe and in Hungary

Figure 2 Ownership of ICT devices in Central Europe and in Hungary
Base: all respondents, weighted column percentages
Questions: A19a, A19b, A19c, A5b
Source: SIBIS 2003, GPS-NAS

As it is demonstrated by the above Figure, the penetration of ICT related products in Hungary corresponds to the Central European level, with the exception of mobile phones. In this latter field Hungary is market leader.

According to SIBIS data the Hungarian public began to use the Internet earlier than in most of the Central European countries but by now the proportion of Hungarian Internet users is under Central European average.

- *Internet usage.* According to the *SIBIS GPS NAS Survey 2003,* 17% of the Hungarian population is regular, and over 5% is an occasional Internet user. On average, in Central European countries 21% of the population are regular Internet users and 5% are occasional users. (Regular user: has used the Internet in the last 4 weeks. Occasional user: has used the Internet in the last 12 months.)
- *For how long respondents have been using the Internet.* According to the *SIBIS GPS NAS Survey 2003*, 55% of Hungarian Internet users have begun Internet usage more than two years ago – which is a higher proportion of long-time Internet users than the respective indicator in the Central European region (50%).
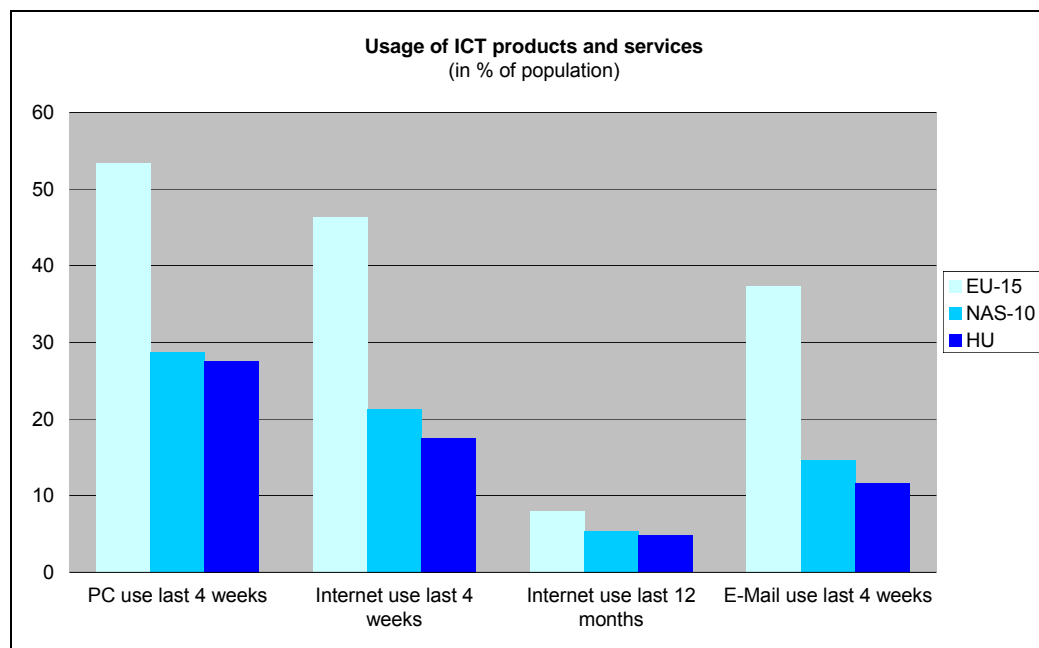
Figure 3 Usage of ICT products and services
Base: all respondents, weighted column percentages
Questions: A1, A7, A8, A3
Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

As it is demonstrated by the above Figure, the proportion of regular PC, Internet and email users in Hungary lags behind the Central European level. The lagging behind of the Central European region is shown by the result that in the member countries of the EU twice as bigger proportion of the population uses PC, Internet and Email than in Central Europe.

4.1   e-Security

Data protection and Internet security is an important issue to which references are made in all relevant Hungarian policy documents[2]. A major element of much of the Hungarian legal framework on e-Security is that the laws were formulated in accordance with EU acts, directives, and treaties and this is mentioned in the laws themselves.

The *electronic signature* is a major tool for authentication. The Law on electronic signatures (2001 / XXXV.) has established the basis of the legal framework for authentication-service providers and has provided the legal recognition of electronic signatures, but for its implementation new decrees are needed. Since 2001 a few providers have begun to offer authentication services according to this Law. The 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
- The so-called qualified electronic signature.

The above three types represent a growing level of security and the Law regulates the scope of acceptance according to the level of security.

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[2] For a long list of policy documents relevant for e-Security in Hungary see SIBIS WP4 Background Study 2003

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

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

The Law on data protection was passed by the Parliament in 1992. It states that everybody has the disposal over his or her personal data, and that everyone can get knowledge of data of public relevance. The Data Protection Ombudsman has issued an official recommendation on 1. February of 2001 on the topic of data protection in relation to the Internet.

Computer fraud in Hungary belongs to the category of economic crimes. It was first entered into the Criminal Code in 1994. In 2002, the law was modified and the category of computer fraud became somewhat broader.

The impacts of e-Security policies are demonstrated below with the help of the findings of the *SIBIS GPS NAS Survey 2003*.

- *Internet security: international comparison.* On average, Hungarian Internet users are much less worried about Internet security than the respective averages of Central Europe. This cannot be attributed to the fact that the proportion of long-time Internet users (for more than 2 years) is higher in Hungary than in Central Europe, because, typically, the longer a person has been using the Internet, the bigger the likelihood that he or she has serious fears over Internet security.
- *Internet security: comparison between dangers.* In the whole Central- European region, and in particular in Hungary as well, people are more concerned about dangers posed by the Internet to their privacy than about dangers related to safety, manipulation or loss of their data.
- *Internet security: comparison among various groups of the population.* Based on the answers of the respondents, those who are most concerned about safety of Internet belong to the 50 to 64 years age group. This group, together with the group aged and the 24 to 49, is the most concerned about safety of purchasing goods over the Internet. The 24-49 age group is the most active in on-line shopping and also the best informed about the safety of websites. Based on the answers of the respondents of the *SIBIS GPS NAS Survey 2003*, in Hungary on-line shopping of women is less frequent than that of men, but women are more concerned about safety dangers of Internet based purchasing than men. Women are also less aware of the safety status and risks of various websites.

Figure 4 Impacts of Internet security concerns
Base: all Internet users, weighted column percentages
Questions: J1a, J1b, J2, J5, J6
Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

As it is demonstrated by the above Figure, the proportion of Hungarian Internet users having concerns about Internet security is lower than in Central Europe. Concerns regarding data security, privacy and confidentiality are on the same level in the EU and in Central Europe. However, concerns regarding e-commerce are higher in the EU than in Central Europe. This can be attributed to the fact that consumers in the EU have longer and deeper experiences with regard to e-commerce than consumers in the accessing countries.

5. e-Society and Social Inclusion

The offering of equal opportunities to all citizens in accessing ICT products and services is one of the corner stones of the Hungarian Information Society Strategy (IHM 2003a). Governmental ICT policies have aimed at offering access to citizens living in remote and less developed regions by building a network of so-called 'Tele-houses' and offering various ICT-related subsidies to local governments located in these areas within the framework of regional policy. Other, more recent programmes have aimed at connecting students of ethnic minorities with citizens belonging to the majority.

The following findings of the SIBIS GPS NAS Survey 2003 give a picture on the proportion of regular Internet users within various strata of the population. Within the sample of all respondents the proportion of regular Internet users is smaller in Hungary than in the other surveyed Central European countries. However, regarding the proportion of regular Internet users Hungary lags behind the surveyed Central European countries also
- Within the group of employed people
- Within the group of unemployed people
- Within the group of people employed by private firms
- Within the group of people employed by public organisations.

The only exception from this rule is the group of people participating in education: within this stratum the Hungarian indicator is more favourable than the Central European one.

Table 3 - Internet usage and its location by gender in Central Europe and particularly in Hungary, January 2003

Location of Internet usage	Index	In the surveyed 10 Central European countries			Hungary		
		Male	Female	Total	Male	Female	Total
Regular Internet use at home and at work	N	223	155	378	20	7	27
	Column %	*4*	*2*	*4*	*4*	*1*	*3*
Regular Internet use only at home	N	310	236	546	31	28	59
	Column %	*6*	*4*	*5*	*6*	*5*	*6*
Regular Internet use only at work	N	244	287	531	14	23	37
	Column %	*4*	*5*	*5*	*3*	*4*	*4*
Regular Internet use other place	N	407	353	760	27	25	52
	Column %	*8*	*6*	*7*	*5*	*4*	*5*
No regular Internet user	N	293	265	558	24	24	48
	Column %	*6*	*5*	*5*	*5*	*4*	*5*
Non-Internet user	N	3499	4107	7606	343	434	777
	Column %	*70*	*76*	*73*	*75*	*80*	*78*
Total	N	4,976	5,403	10,379	459	541	1,000
	Column %	*100*	*100*	*100*	*100*	*100*	*100*

Base: all respondents, weighted column percentages, unweighted Ns
Question: A9
Source: SIBIS 2003, GPS-NAS

Gender-specific differences in Internet-usage. Although male advantage in Internet usage is continuously decreasing, at this day it is still a typical feature in Hungarian and Central European Internet usage. According to the above table, the differences in Internet usage between genders in Hungary are not greater than it can be observed in the averages of the 10 Central European countries being investigated. Namely, the differences between the ratios of column (a) and (b) differ only slightly from the differences between the ratios of column (d) and (e).

As in all Central European countries, the young generation uses the Internet more frequently than other age groups. Research done by the TÁRKI research institution has revealed that Internet users are over-represented amongst people living in Budapest or other large towns, people with higher education, and high living standards. The dominance of these groups is very strong from the beginning and still very important. (ITTK-TÁRKI 2002.)

Differences according to the place of Internet-usage. Based on the comparison between column (c) and (f), it appears that the lag in the numbers of Hungarian Internet-users mainly relates to a lag in Internet connection at workplaces.

Table 4 - Internet usage by age of finished education Central Europe and in particular, Hungary, January 2003Base: only respondents with finished education

Internet usage	Index	In the surveyed 10 Central European countries				Hungary			
		Age of finished education							
		At 14 or less	15-18	At 19 or more	Total	At 14 or less	15-18	At 19 or more	Total
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Regular (last 4 weeks)	N	10	384	1089	1483	2	58	68	128
	Column %	*1*	*9*	*30*	*16*	*1*	*12*	*40*	*145*
Occasional (last 12 months)	N	6	150	267	423	5	21	14	40
	Column %	*0*	*4*	*7*	*5*	*2*	*4*	*8*	*4*
Non Internet users (including 'never heard of the Internet')	N	1414	3639	2272	7325	270	413	87	770
	Column %	*99*	*87*	*63*	*80*	*97*	*84*	*51*	*82*
Total	N	1,430	4,173	3,628	9,231	277	492	169	938
	Column %	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

Base: all respondents, weighted column percentages
Question: IN2, A5, A7, A8
Source: SIBIS GPS NAS Survey 2003

The ratio of regular Internet-users lag behind the Central European average even if considering only those persons who have already finished their education instead of the entire populace older than 15 years old (Compare columns (d) and (h)).

By investigating the group of respondents who have finished their education we can assess the dimensions of the digital gap according to qualification in Central Europe. (For this purpose we have to compare columns (a), (b) and (c).) It can be stated that the ratio of Internet-users is highly dependent on the level of education of the group one takes into consideration. If now the analysis is focused to Hungary (see columns (e), (f) and (g)), one finds the following results: In Hungary the frequency of the usage of the Internet is even more dependent on the level of education than it is the case in Central Europe. Thus, the Hungarian digital gap separates more the qualified from the unqualified than it would be expected on the basis of the Central European average.
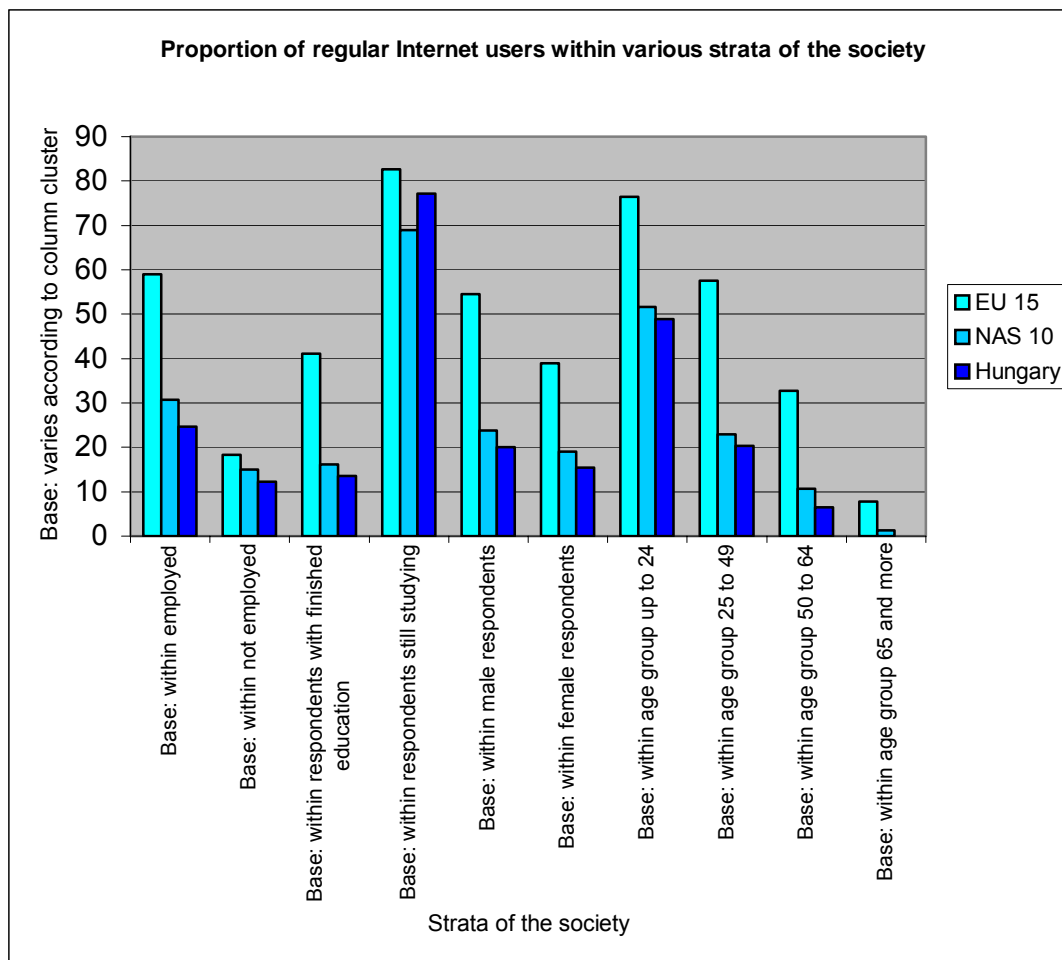
Figure 5 Proportion of regular Internet users within various strata of the society
Bases: see figure
Questions: A7, A8, IN1, IN4, IN6, Z21
Source: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

As it is demonstrated by the above Figure, the lagging behind of Central European countries compared to the EU is visible in every investigated group of the society, in particular among older respondents. Regular Internet usage in Hungary is on a lower level than in Central Europe. This statement is true within various base populations such as employees, males, females, and every age group. Students are an exception: within this group the proportion of Internet users exceeds the respective Central European average.

6.   e-Education and Life-long-learning

The average qualification level of the Hungarian population has been on the rise in the last decades, but it still considerably falls behind the EU average. The improving tendency is due to the substantial extension of the elementary and secondary level of education and to the improvement of schooling rates that are considered to be favourable in international comparison. During the last decade the number of higher education participants rose from 100,000 to more than 300,000, thus increasing the ratio of diploma-owners in the population. None the less these indicators are still considerably lagging behind the EU average.

Quality of education. Recent education strategy documents published by the Hungarian Government (NFT 2003, HRD OP 2003) highlight that the structure of education in Hungary does not match the needs of the labour market and that it does not lay down the bases of lifelong learning. International comparative studies (OECD – Pisa 2000) have also shown that the Hungarian educational system does not improve sufficiently two skills regarded as crucial– foreign languages and Information Technology (IT). Moreover the dependence of the learning achievements of students on the social and economic background of their families is stronger in Hungary than in most of the countries investigated by the PISA Survey (PISA= Programme For International Student Assessment). The difference between learning achievements of village and town based students is also bigger in Hungary than in other OECD countries. Learning achievements of students, particularly in the field of IT are very much dependent on the size of the settlement they live in.

The deficiencies and differences in skills are partially explained by the backward technical condition and equipment status of the Hungarian schools. The quality of school buildings is far behind the EU average and two third of the school buildings do not even satisfy the requirements of existing Hungarian regulations.

Distance learning as a concept is used in Hungary in a very wide sense: all non-traditional, open, elastic, non-classroom-based modes of education are called distance learning, even if information technology plays only a minor role, or none at all. Paper-based modes of distance learning already plays a major role in the secondary level training of adults, and the importance of electronic solutions may increase in this field.

In 1991 the Ministry of Education established the National Council for Distance Education, which was instrumental in creating regional distance education centres in 16 universities of 10 Hungarian towns. In creating these systems the EU education development programs have contributed substantial aid (Tempus, PHARE). Additionally a handful of foreign universities have established distance learning subsidiaries in Hungary. Although higher education maintains a widespread network of distance education, public and vocational education still lags behind.

e-Education. In all of its related strategic documents, the Ministry of Education has committed itself to the extension of the open and the distance learning, to the development of the application of information technology in teaching methods and to the spreading of e-Learning. (HRD OP 2003)

The major e-Education programme 'Sulinet' has been initiated by the Government in the mid 1990s. The programme aims at the equalisation of students' opportunities, the creation of the open school and the establishment of the schools' Internet infrastructure by developing a central teaching content provision (Vámos 1994). The 'sulinet.hu' portal site is the most popular Hungarian teaching portal (with 110-120,000 visitors daily) that provides content about teaching materials, teaching methods and the institutional conditions of teaching to students, teachers, institution directors and maintainers and to parents (Sulinet 2003). Thanks to the Sulinet-system in educational institutions, a wide range of students and teachers use the Internet, though this usage is not directly linked to the teaching procedure. In the beginning of 2003, 99% of the secondary schools and 20% of the elementary schools have joined the Sulinet Programme, a total number of 2,400 institutions. In 2003, a further 600 institutions may have the opportunity to join the system. According to the plans, by 2005 all domestic institutions, as well as over 300 public educational institutions in the neighbouring countries, will have joined the Sulinet Programme.

Despite government efforts, in Hungary distance education supported by IT means is at its beginnings. Even if the target groups of e-Learning had the necessary Internet access, they would have to face numerous difficulties. Although educational institutions possess Internet access, there is a shortage of the necessary human and infra-structural resources for integrating traditional and new media, serving interactive e-Learning. In particular, there is a shortage of courses with available interactive, electronically supported curricula packages in Hungarian language. At the same time important segments of the target groups of e-Learning - such as the unemployed - are typically not speaking foreign languages. The training of teachers able to teach with e-Learning methods shows also deficiencies. To sum it up, most of the conditions of the system of e-Learning are missing, whereby the creation of Internet access of schools and is just the beginning.

The results of the SIBIS GPS NAS Survey 2003 present the following picture on the impacts of educational policy, in particular in the field of e-Learning.

The *SIBIS GPS Survey 2003* is as an instrument suitable for assessing the IT knowledge of the population. Regular Internet-users have been investigated by their Internet abilities, knowledge. During this self-assessment process respondents have evaluated their own skills on a 3-level scale taking 8 knowledge types into consideration. The following figure demonstrates the average levels of these knowledge types by region, and in particular for Hungary
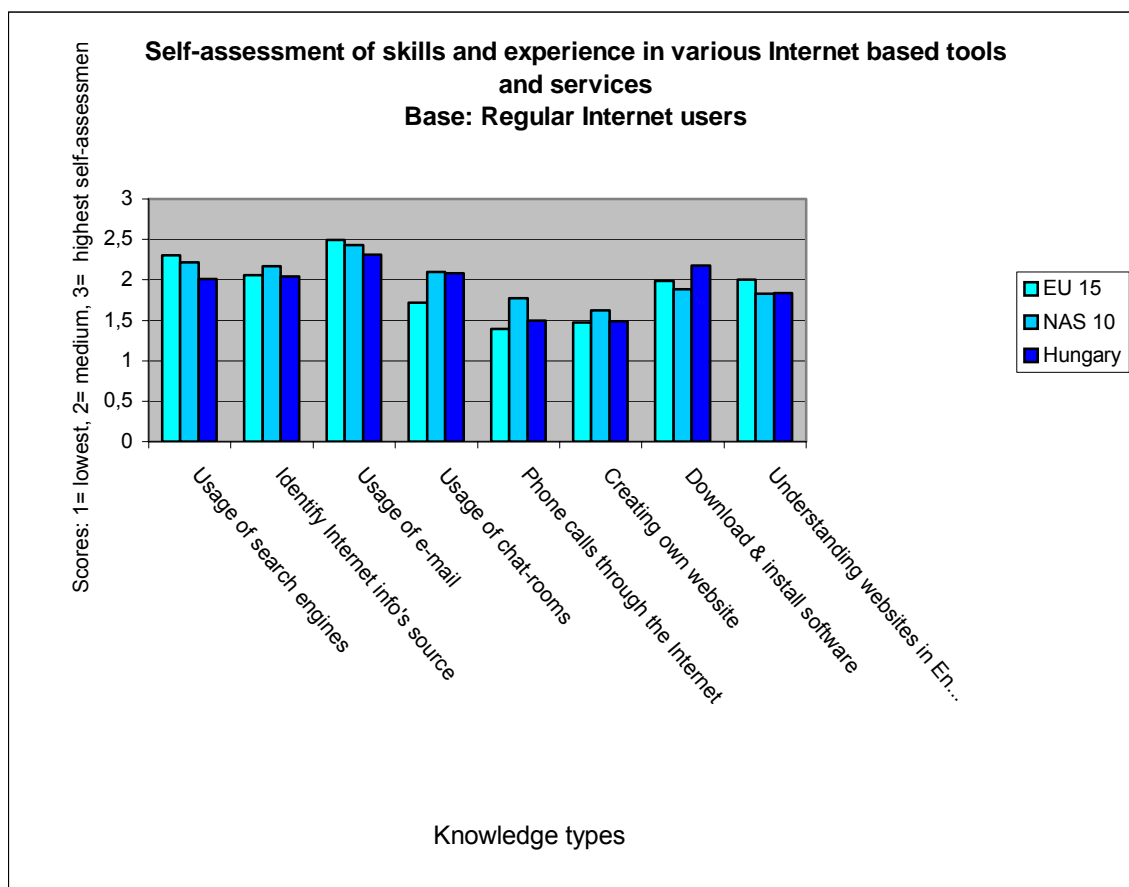
Figure 6 Self -assessment of skills and experiences in various Internet based tools and services
Base: Regular Internet users
Question: D1
Source: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

According to the SIBIS GPS NAS Survey 2003, the IT knowledge of regular Internet users does not differ significantly from knowledge of regular Internet users in the EU. Among the knowledge types taken into consideration, both in Central Europe and in the EU the usage of the e-mail and that of the search engines scored best, while Internet-based phone calls, the creation of own websites and the understanding of English sites scored worst.

This order of difficulty was almost the same in every country and among others, in Hungary, too. However, it is noteworthy that the hardware and software conditions for Internet-based phone calls are available only in few places in Hungary at present, thus the response to this question is often missing and the assessments of the results are not as unambiguous as in the case of other skills. As it is demonstrated by the above Figure, the self-assessment of Hungarian regular Internet users regarding most of the Internet related knowledge types, lags somewhat behind the average of Central Europe. An exception is the skill of downloading and installing software from the Internet, where Hungarian self-esteem among regular Internet users is higher.

In the following calculation a composite evaluation of Internet skills is created as the arithmetical mean of the self-evaluations of the 8 Internet-related knowledge-types. The country-dependent Index of self-confidence in use of Internet based services and tools is created as follows. There are 10 NAS countries and 8 knowledge-types (d1_a, d1_b, and d1_h). In the first step for each of the 10 countries the means of each of the 8 knowledge-types are created among regular Internet users, resulting in 10 X 8 aggregated numbers. In the second step for each country an arithmetic average of the 8 aggregated knowledge-type-specific indices are created.

In this type of composite self-assessment Bulgarian, Slovenian and Rumanian Internet-users have given the best average results to themselves in the self-assessment. Hungarian Internet-users proved to have quite low self-confidence, because Hungary ranked only 8th from the 10 countries according to the totalised results with only Polish and Estonian Internet-users confessing less experience in the usage of the Internet.

Table 5 - Internet using skills and experience among regular Internet-users by various social and economic aspects. Central Europe and Hungary, January 2003.Base: only regular Internet users, i.e. respondents reporting usage of Internet in the last 4 weeks.

In the surveyed 10 Central European countries	In Hungary
By temporal aspects. The earlier the user started to surf the web and the more frequent his usage is, the better is the assessment he gave to himself.	These findings are valid in the case of Hungary, too.
By age-groups. The younger the age-group we consider, the more Internet-related knowledge and self-confidence these people show. This statement holds to all of the investigated 8 knowledge-types with the exception of understanding of English websites that seems not to depend on the age of the users. The frequency of people able of creating one's own website is so low that the age-dependence of this knowledge type cannot be determined.	These findings are valid in the case of Hungary, too. The main difference is that the age-dependent knowledge gap between middle-aged users and young users in Hungary is much wider than in the average of the surveyed Central European countries.
By gender. Men have considered themselves better in all categories than women. The gap between the average results of men and women is almost the same as the difference between the average results of the youngest and oldest age-groups (dividing the population into 4 age-groups).	These findings are valid in the case of Hungary, too. The main difference is that the gender-dependent knowledge gap between Internet using women and Internet using men is narrower in Hungary than in the average surveyed Central European countries.
By level of qualification. According to the expectations, the better the qualification of the user (meaning the more time he spent of his life as a regular student), the greater is the probability that he or she can use the Internet better. This statement holds each of the investigated 8 Internet related knowledge types.	These findings are valid in the case of Hungary, too and hold even stronger than in the entire region, i.e. in Hungary, Internet related knowledge depends much stronger on the level of qualification than in the average of the surveyed Central European countries.
By labour-market status. Internet related knowledge of the active working population is better than the knowledge of the inactive, but the difference is not substantial, it is only one seventh of the difference between the results of men and women.	These findings are valid in the case of Hungary, too, but the difference between the knowledge of the working and the inactive population is two times greater in Hungary than in the entire region.
By the size of the company the respondent works for. Internet-related knowledge does not depend significantly on the size of the company the user works for. (This question has been asked only from the active population.)	These findings are valid in the case of Hungary, too.
By legal form of the working place for which the respondent works for. Internet-based knowledge of the population working in the private sector is slightly better than the same knowledge of the employees in the public sector.	These findings are valid in the case of Hungary, too.

Source: SIBIS 2003, GPS-NAS

7.   e-Economy and e-Commerce

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 (NFT 2003).

Electronic commerce is developing 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 held in December 2002 states that in 2002 only 6% of Internet users have purchased products or services online. (GKI 2002) 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 Internet 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. Some of the advertising companies do not always conform to the fair trade rules. 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 state 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.

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.

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 Európa 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 most electronic clients: in 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, PricewaterhouseCoopers - 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. (1 Euro=250 HUF in January 2002.) Its central catalogue offers several tens of thousands of articles. Marketline co-operates with Austrian and Slovakian companies and gradually a regional portal emerges.

Legal provisons. 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 and regulates 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.

According to a survey conducted by GFK Market Research Inc. in 2002, half of the companies use online media for advertisement. (GFK 2002) 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 is 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 eight 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.

A survey made on purchasing habits of Internet users states that lack of trust in Internet based payment method is one of the main concerns holding people back from e-purchasing. Online security firms offer a wide range of quickly developing systems, whereby the most widespread payment system is the 128 bit SSL method. However, in case of failures users do not enjoy satisfactory guarantees.

According to SIBIS data Hungarian users buy products on the Internet with same weak intensity as the Central European average, however they are less anxious about safety concerns.

E-commerce activity of the population. Purchasing products and services via the Internet is still rare in the whole region. The SIBIS GPS NAS Survey 2003 shows that, during the last year, only 13% of Hungarian Internet users purchased on-line (Central Europe: 14%). Among these persons the 25-49 age group and men are over-represented both in Hungary and in the whole of Central Europe. However, some 65% of Hungarian Internet users have used the Internet for obtaining information on products or services before purchasing (Central Europe: 61%).
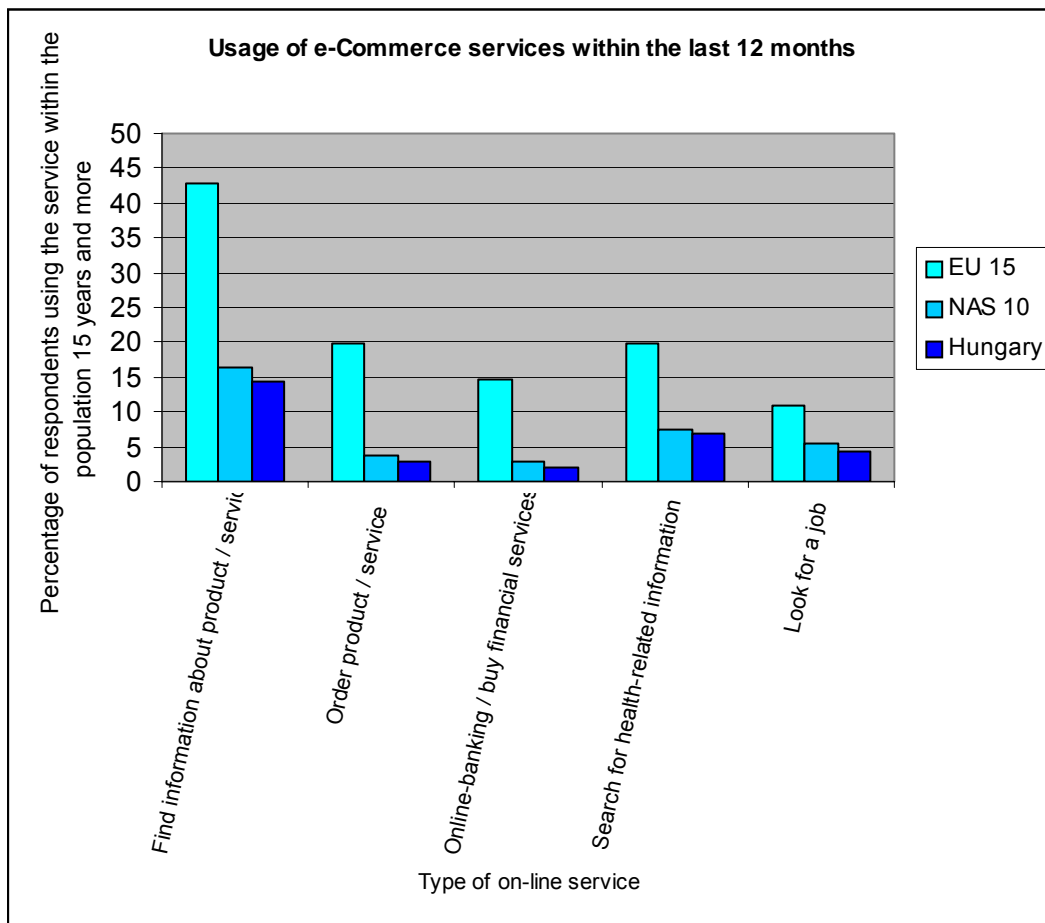

Figure 7 Usage of eCommerce services within the last 12 months
Base: all respondents, weighted column percentages
Questions: B1
Source: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

As it is demonstrated by the above Figure, In EU Member States a much (2 to 5 times) higher proportion of consumers uses e-commerce services than in Central Europe. In particular, in Hungary the usage of practically all e-commerce services lags somewhat behind the respective indicators of Central Europe, although the differences between the respective Hungarian and NAS figures are less than one percentage point.

8.   e-Work

During the last five years many of the strategic documents of the Hungarian Government have emphasised that the rapid development of the information and communication technologies and the new opportunities to use these developments enables a higher work-efficiency and restructures the labour market in many fields of the economy, the public administration and of the public services. (NFT 2003). However, these governmental sources highlight the lag in the human resource development tasks that follow from the above changes.

Employee training. Those Hungarian employers who are investing into the training of their employers are eligible to a special type of tax break. This tax break is the single biggest financing source for the training of working adults. In the year 2001, about one fifth of the employees took part in some kind of training (NFT 2003). The assortment of trainings available is increasing in Hungary. In-company training of employees is typical for big firms in the first place and less typical for medium-sized firms and this involves more and more usage of distance learning and e-Learning. However, it is not typical for small companies, where the majority of employees work, that they spend on the training of their workers. The two types of companies with the most training are the ones operating in the service sector and the ones that have undergone major technological changes in the last years.

Unemployed training. According to the Ministry of Labour and Employment, about one sixth of the unemployed participates in labour-market-oriented training. The source of this training is the amount separated for active labour-market policies in the so-called Labour Market Fund. A great part of the training provided for the unemployed focuses on the development of IT knowledge and skills. (HRD OP 2003)

The IT training market. The so called National Training List (OKJ) is the collection of more than 600 vocational training fields recognised by the state, updated and published yearly in a ministerial decree. Labour market training can be financed by state means only if the training is listed on the OKJ. IT related vocational training courses recognised by the National Training List are offered not only by many public schools and universities but also by free market firms. On this market there is an oversupply of IT training opportunities. Since 1997 the so-called ECDL (*European Computer Driving Licence*) accreditation scheme has been widespread. The ECDL has been made part of the government's training system for public servants and teachers. Up to March 2003 some 93 thousand people have been registering themselves as participants in ECDL type trainings and almost 50 thousand people have passed successfully ECDL type examinations. There are more than 270 accredited ECDL examination centres. All big IT firms have launched separate business lines for training. Some 25 per cent of the training courses are being initiated by company clients. A wide range of companies offering IT training enters the field of distance learning, and in particular e-Learning.

Research has shown that in 2003 more than half of the people with finished higher education use the Internet for job search when in need of a job (Világgazdaság, 2003b).

According to the SIBIS GPS NAS Survey 2003 survey, the encouragement of the employees for in-company training is weak in Hungary. While in EU member countries one third of the employees have taken part in some kind of IT training, this is not so common in Hungary. The survey confirms the fact that, compared to other countries, the Hungarian workplaces motivate their employees less than their Central European counterparts, because in Hungary less employees perceive their working as places where they have to learn continuously (See answers to Question H2_b in the following Table.). At the same time Hungarian respondents show less initiative than the Central European average when taking self-training into consideration. These findings are supported in the following table based on the SIBIS Survey.

Table 6 - Participation in trainingNumber and ratio of employees answering 'yes' to various training-related questions.Central Europe and Hungary, January 2003.Base: Only employees

Question	In the surveyed 10 Central European countries		Hungary	
	N= Number of 'yes' responses	Ratio of 'yes' or 'strongly agree' responses	N= Number of 'yes' responses	Ratio of 'yes' or 'strongly agree' responses
(C2) In the last four weeks, have you participated in any training related to your work that has been organised by your working place or any other company?	495	11.9	42	9.8
(C14a) In the last four weeks, besides the training that have been organised by others, have you participated on your own initiative in any type of training that is related to your work?	622	14.9	27	6.4
(H2_b) Is it true that at your recent workplace, you have to learn continuously?	1,362	32.6	116	27.3

Base: all persons employed, weighted column percentages
Questions: C2, C14a, H2b
Source: SIBIS 2003, GPS-NAS

The SIBIS GPS NAS Survey 2003 *does not give a flattering picture of the technical development of the Hungarian training market.* During the trainings, the Hungarian responders used less all types of electronic equipment being concerned than their Central European counterparts.

Table 7 - Usage of electronic education equipment. Ratio of employees answering 'yes' on questions on usage of electronic education equipment. Central Europe and Hungary, January 2003.

Question	In the surveyed 10 Central European countries		Hungary	
(C18a) During the studies you carried out in the last four weeks, have you used electronic equipment such as training programmes on cassettes, CD-ROMs, computers or on the Internet?	N= Number of 'yes' responses	Ratio of 'yes' responses	N= Number of 'yes' responses	Ratio of 'yes' responses
	265	6.3%	25	5.8%
(C19a_a) What type of equipment have you used during your studies in the last four weeks? Have you used CD-ROM or other, so-called offline equipment, such as disks, audio or video cassettes?	229	5.5%	19	4.5%
(C19a_b) What type of equipment have you used during your studies in the last four weeks? Have you used on-line accessories from your company's in-house network (Intranet) or from the Internet?	154	3.7%	14	3.3%

Base: all persons employed, weighted column percentages
Questions: C18a, C19a, C19b
Source: SIBIS 2003, GPS-NAS

On the EU labour market, the year 2001 was the first when more than half of the employees used computers on their workplaces (Benedek 2003). However, according to the SIBIS Survey, the ratio of computer-users among employees in the last four weeks is 42% in Hungary, but this includes the PC usage at home and at public places as well. This latter ratio is exactly the same as the Eastern-European average.

Distance working. Distance working falls under the category of atypical employment in the Hungarian governmental terminology. With the support of the former governments, considerable public Internet infrastructure has been established throughout the country in the form of networked 'Tele-houses' that provide public services and work closely together with regional governments. One of the aims of their establishment was the support of distance working opportunities. In Hungary already many employees and self-employed persons in the knowledge-intensive professions spend a significant proportion of their working time at home, establishing contacts with colleagues and/or clients via Internet. However, most of these persons do not regard themselves as tele-workers, and the demand for workplaces with full-time distance working in Hungary is very low (Laczkó 2002).

However, the potential opportunities of distance working are growing,
- on the one hand because the outsourcing of tasks is becoming more and more cost-efficient for companies and institutions and
- on the other hand because with the aid of distance working, the small and micro enterprises may be able to compete with large and capital-based companies even if they operate in the countryside, far from the capital, in hardly accessible regions that are in worse economic conditions. (Laczkó 2002)

The development of distance working calls for more support than the running of the Tele-house network. Distance working has to be introduced into the labour legislation, which means that the Employment Law and the Working Code have to be modified. Furthermore, it is necessary to create a financial and economic incentive system for the development of the info-communicational conditions and for the exploration of distance working activities and opportunities (Benedek 2003).

In 2002, the Ministry of Labour and the Ministry of Informatics and Telecommunications have financed together the support of the creation of workplaces utilising distance working (Index 2002). During Autumn 2002, the Ministry of Labour established an institution whose object is to implement the tasks related to the government's distance working programme. The teaching and training of the distance workers is an important task, its organization has been included into the tasks of the Public Employment Service (BMIK 2003).

The SIBIS Survey confirms that the potential for distance working in Hungary is weaker than the Central European average. At present, the phenomenon of distance working is so rare, that a study involving 1000 responders cannot demonstrate its presence in the labour market. However, at the same time it is evident that the introduction of distance working may take place only at workplaces where there is an existing tradition of electronic data transfer. Again, the SIBIS Survey does not give a flattering picture of the situation in Hungary. All indicators of data transferring at workplaces scored worse in Hungary than in Central Europe.

Table 8 - External data communication at workplaces. Central Europe and Hungary, January 2003.

Question	In the surveyed 10 Central European countries		Hungary	
(G1) What is the situation of the usage of telecommunication techniques at your workplace? When you communicate with an outside party, do you sometimes use e-mail, video conference or electronic data transfer? Outside party refers to clients, consumers, suppliers or other business partners and to colleagues who work at other working sites.	N= Number of 'yes' responses	Ratio of 'yes' responses. 100%= Number of employees.	N= Number of 'yes' responses	Ratio of 'yes' responses. 100%= Number of employees.
	677	16.0%	56	13.2%
Question	N= Number of 'weekly once or more often' responses	Ratio of 'weekly once or more often' responses. 100%= Number of employees.	Number of 'weekly once or more often' responses	Ratio of 'weekly once or more often' responses. 100%= Number of employees.
(G2_a) During an ordinary week, how frequently do you use e-mail with your outside contacts?	563	13.5%	43	10.1%
(G2_c) During an ordinary week, how frequently do you send attachments with your e-mails or send data electronically in any other way to your outside contacts?	439	10.5%	40	9.4%

Base: all persons employed, weighted column percentages
Questions: G1, G2a, G2c
Source: SIBIS 2003, GPS-NAS

9.   e-Government

The National Development Plan of 2002 attaches a very high priority to the development of online Government services, and within that Government-to-Citizen electronic public administration, and in particular to electronic services offered by local governments (NFT 2003).

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. (1 Euro=250 HUF in January 2002.) (Bell Research 2002) Central agencies of the Government (such as ministries) are big buyers of infocommunicational products and services: these organisations have spent in 2001 some 20 to 25 billion HUF on such purposes. 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 is typically has 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.

All sectoral ministries and the Prime Minister's Office as well are beneficiaries of various, Government-sponsored ICT related developments. The most important such developments are co-ordinated by special inter-ministerial committees. An example for such an important line of development is the co-ordination of the utilization of various databases that are being continuously created during the administrative processes in the public administration.

The majority of publicly financed organisations have participated in ICT development tenders financed and initiated by the Government. The description of a typical tender follows. In 2002 the Ministry for Informatics and Telecommunication has issued a tender under the name 'e-Democracy'. This framework has ensured that among the applicants some 1,500 local governments have received funds to develop their info-communication platforms and digital applications. The tender financed the following investments:
- purchase of PCs total some 450 million HUF (1 Euro=250 HUF in January 2002)
- developments of electronic signature in the volume of 1.5 billion HUF
- Internet access development in the volume of 1.5 billion HUF.

The respective local governments have been obliged
- to employ minimum one person responsible for the usage of the equipment
- and to cover the costs of access to the Internet including the telephone bill generated by Internet usage.

An international survey conducted by the market research company Taylor Nelson Sofres in 2001 has revealed the similarities and differences between 31 countries regarding electronic case processing by government agencies (TNS 2001). 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.

In 2002 the Hungarian market research company Netsurvey Ltd. conducted a survey among public administration institutions in Budapest, 4 county seat towns and 4 other towns with more than 20.000 inhabitants (Netsurvey 2002). 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 of the study follows (Netsurvey 2002). On-line case administration and the maintenance of online contacts between offices and citizens are still at a nascent, under-developed state in Hungarian public administration institutions. 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 program '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 only a sum of between 200 thousand HUF and 1 million HUF to this purpose (1 Euro=250 HUF in January 2002). The most typical source to develop these websites is the participation on specific, mostly Government financed tenders devoted to local development, including electronic 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 in such places even the Mayor is available for an electronically organised chat in certain pre-determined hours.

An important legislative step towards secure Citizen to Government connections, towards electronic case processing is the acceptance of the Law on Electronic Signature (Law XXXV. of 2001) by the Hungarian Parliament. As a result of the development of electronic signature, companies have filed a dynamically growing number of tax returns to tax authorities. 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. Another example: since Fall 2002 the biggest companies of the county Pest are able to file tax returns regarding company profit tax in a similar way. (Hungary consists of 19 counties plus the capital Budapest.) This was a very costly investment having a price of 300 to 350 million HUF (1 Euro=250 HUF in January 2002), a development financed by the State Tax Office.

No similar developments have taken place in the household sector, e.g. the electronic filing of personal income tax returns has still not occurred up to this date. 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.

Table 9 - Usage of e-Government services within Internet using population (occasional or regular) in Central Europe and in Hungary Percentage of population having accessed the following services over the Internet

Type of on-line service used during the last 12 months	In the surveyed 10 Central European countries		In Hungary	
	N= Number of users	Percentage of users among the total population	N= Number of users	Percentage of users among the total population
Tax declaration	65	2.3	3	1.3
Use of job search services of public employment service	191	6.9	12	5.4
Request for personal documents	19	0.2	0	0
Car registration	7	0.2	0	0
Declaration to the police	7	0.2	0	0
Searches for books in public libraries	396	14.3	31	14.0
Announcement of change of address	26	0.9	0	0

Base: Occasional and regular Internet users. Weighted column percentages.
Question: K3_a to K3_g.
Source: SIBIS 2003, GPS-NAS

The above Table demonstrates that the usage of e-Government applications in the surveyed 10 Central European countries and in particular in Hungary is rather an exception than a rule. However, the low occurrence of these services in Hungary has its roots not only on the deficiencies of the offer side (the Government institutions), but also in the attitudes and preferences of the citizens.
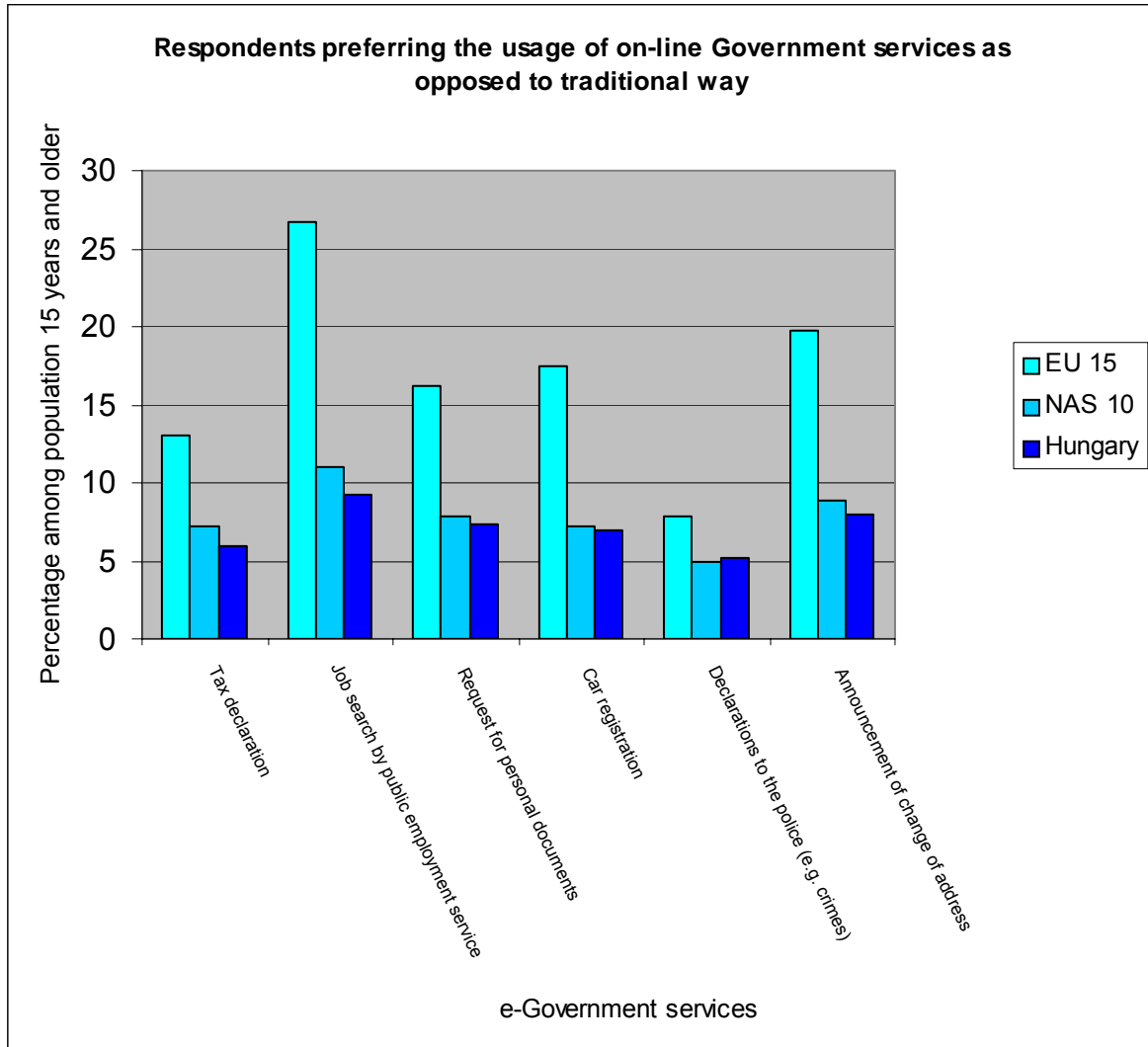

Figure 8 Respondents preferring the usage of on-line Government services as opposed to traditional way
Base: all respondents, weighted column percentages
Question: K1
Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

As it is demonstrated by the above Figure, attitudes in EU Member States are much more favourable for the introduction of e-Government services than in Central Europe. In particular, the attitude of the average Hungarian citizen shows that a somewhat smaller readiness to interact with the Government in an electronic way than it is the case in Central Europe.

10.   Conclusions

The development of Information Society can be conceived as a slowly accelerating spread of Information Technology within and between various sectors of the economy, the public administration and various strata of the population.

Most of the Information Society indices of penetration, attitude and knowledge developed by the SIBIS Project show that Hungary is a typical or somewhat lagging behind Central European country.

In particular, the usage of ICT applications such as e-Commerce, e-Learning and e-Government is still in its infancy, despite costly efforts of the Government and despite the wide portfolio offered by ICT product and service providers.

The main constraints of development are high costs associated with ICT developments, shortages of solvent demand on the side of households, companies and public organizations, the shortages of public and semi-public infrastructure, lack of appropriate competition, the lack of relevant know-how and finally the lack of trust in the feasibility and security of ICT services.

11.   Abbreviation List

DSL: Digital Subscriber Line
GPS: General Population Survey
GPRS: General Packet Radio Service
HUF: Hungarian Forint
ICT: Information and Communication Technology
IT: Information Technology
ISDN: Integrated Services Digital Network
MMS: Multimedia Messaging Service
NAS: Newly Associated States
PISA: Programme For International Student Assessment
SIBIS: Statistical Indicators for Benchmarking Information Society
SMS: Short Message Service
WAP: Wireless Application Protocol

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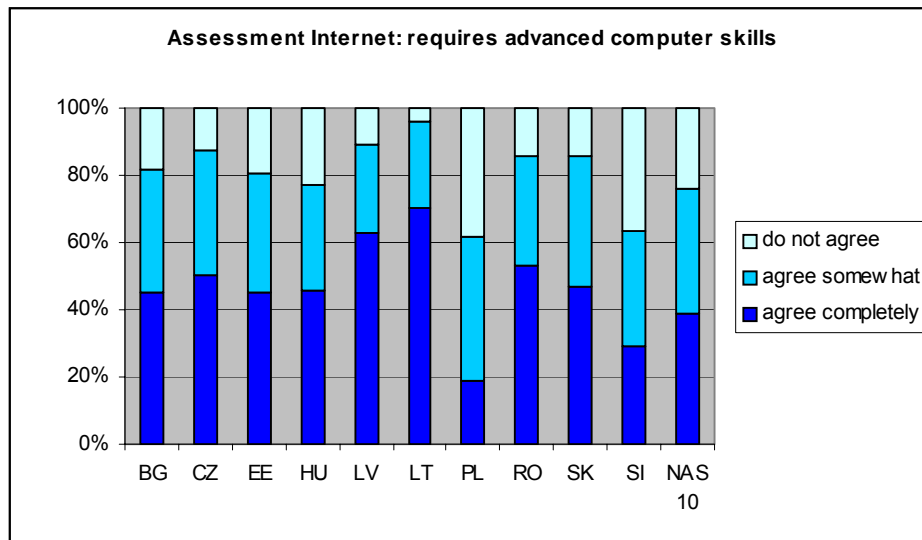
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13. Annex 1: Cross-country comparisons of Central European attitudes to Internet

The development of Information Society is driven not only by support policies and by the supply side of the ICT market, but also by demand considerations of the citizens. These in turn are deeply influenced by general attitudes of the population towards Internet as a service, its usage and the impacts on family life and budget. The following results of the SIBIS GPS NAS Survey demonstrate, how Central European countries vary according to the general attitudes of the population.

Base: respondents who ever have heard of the Internet, weighted column percentages
Question: A18a
Source: SIBIS 2003, GPS-NAS

Regarding the opinion that Internet usage requires advanced computer skills, Hungary seems to be a typical Central European country. Comparatively, Polish and Slovenian respondents are using this innovation with more self-confidence, while on the other side, Latvian and Lithuanian respondents are demonstrating more cautiousness regarding their Internet-related knowledge.

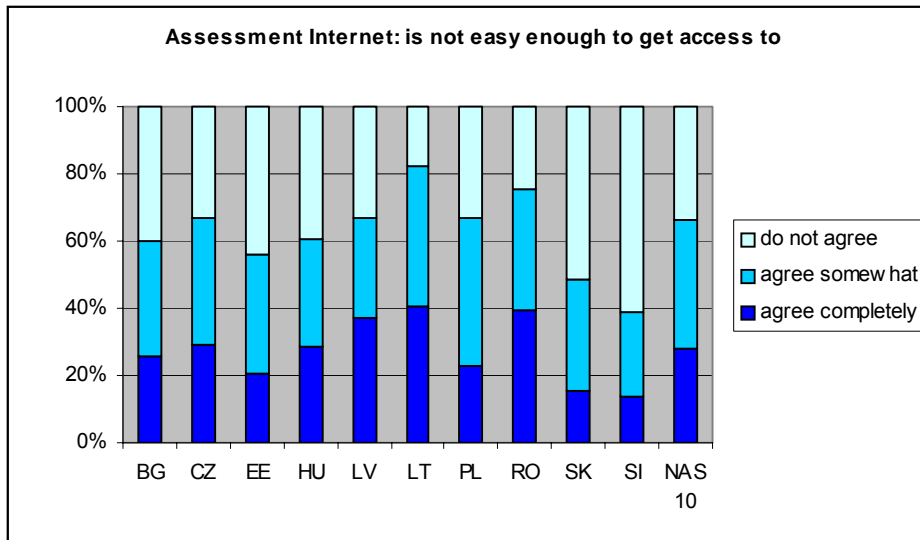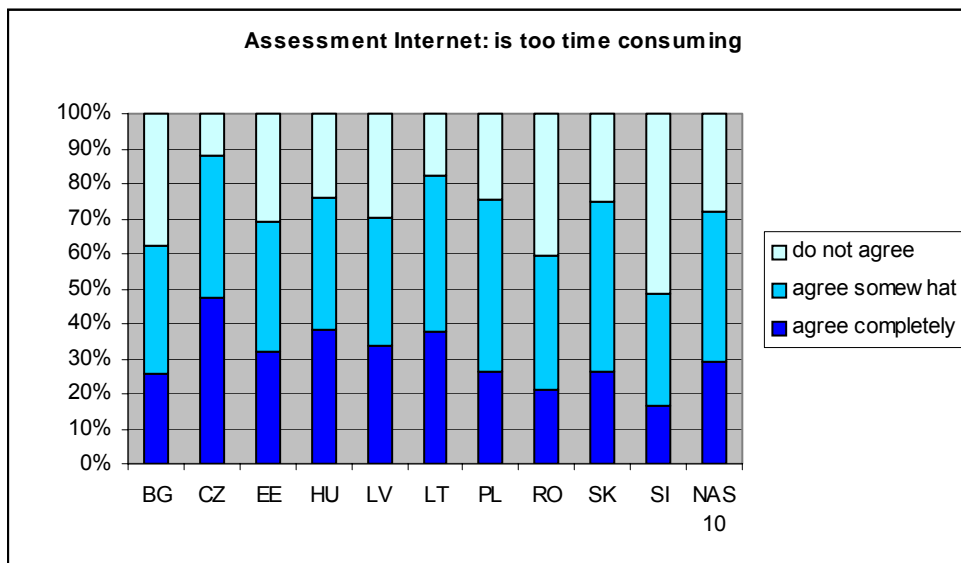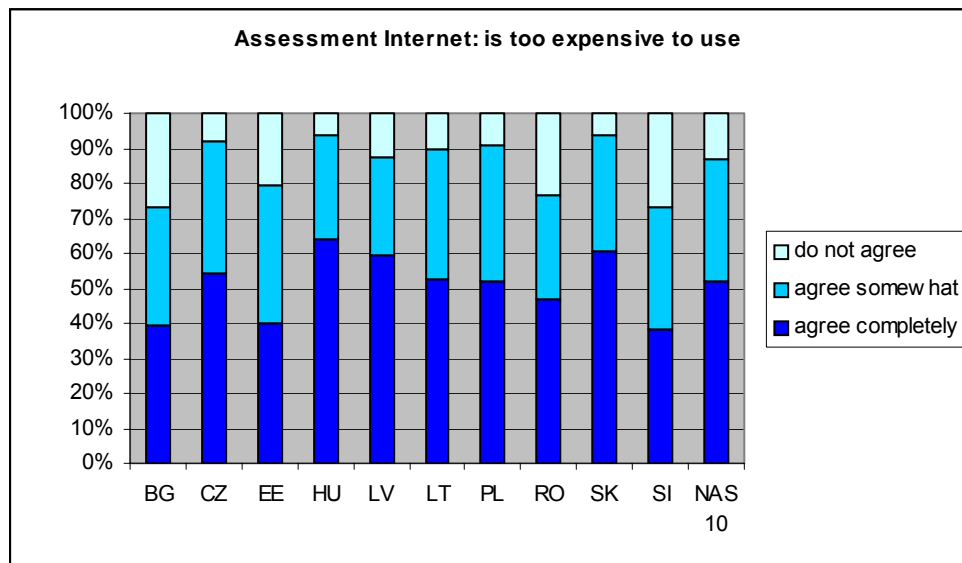**Assessment Internet: is not easy enough to get access to**

Base: respondents who ever have heard of the Internet, weighted column percentages
Question: A18b
Source: SIBIS 2003, GPS-NAS

Regarding the ease of access to the Internet the opinion of Hungarian citizens is very similar to the Central European average. The two extremes are represented by the Slovakian and Slovenian respondents, who predominantly think that it is easy to get access to the Internet, and on the other side by Latvian, Lithuanian and Romanian respondents, many of whom have expressed concerns about Internet access.

Assessment Internet: is too time consuming

Base: respondents who ever have heard of the Internet, weighted column percentages
Question: A18c
Source: SIBIS 2003, GPS-NAS

Hungarian respondents are somewhat more critical about Internet usage regarding its time consumption, than average Central European respondents. Comparatively, Czech respondents worry in highest proportions about long times spent with Internet usage, while on the other side, Slovenian and Rumanian respondents are demonstrating less worries regarding this subject.

Assessment Internet: is too expensive to use

Base: respondents who ever have heard of the Internet, weighted column percentages
Question: A18d
Source: SIBIS 2003, GPS-NAS

Among the Central European countries Hungarian citizens seem to have the most worries about expensiveness of Internet usage. Here and in Slovakia the proportion of people complaining about Internet prices is the highest in the region. On the other hand, Bulgarian, Estonian and Slovenian citizens seem to attach the smallest importance to the price issues.

Assessment Internet: lacks useful or interesting information

Base: respondents who ever have heard of the Internet, weighted column percentages
Question: A18e
Source: SIBIS 2003, GPS-NAS

Most of the respondents in the whole region have rejected the opinion that Internet lacks useful information, and Hungarian respondents had typical attitudes from this respect. Bulgarian and Romanian respondents have expressed the least concerns about Internet contents, while comparatively, Czech respondents were the most sceptic.

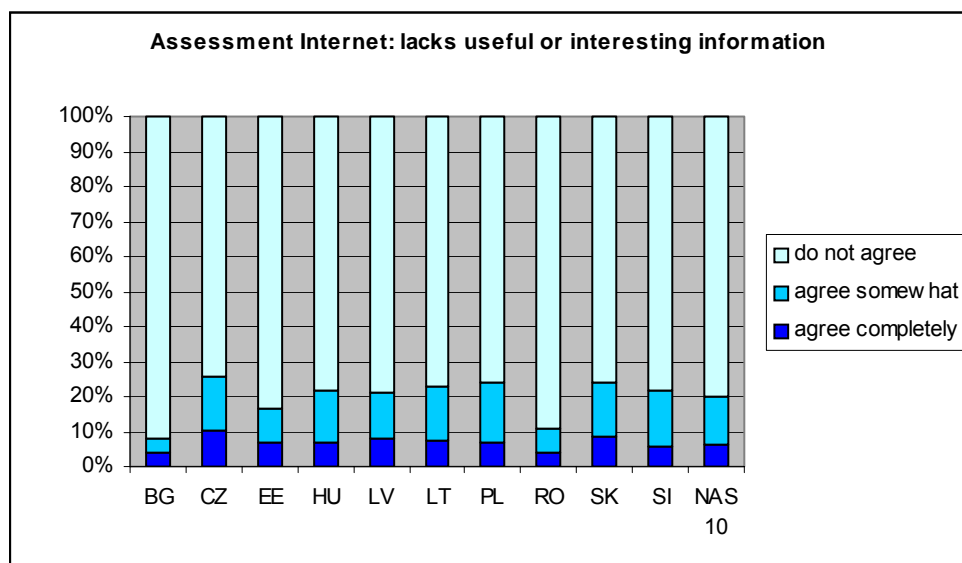**Assessment Internet: is not something for me**

Base: respondents who ever have heard of the Internet, weighted column percentages
Question: A18f
Source: SIBIS 2003, GPS-NAS

Among the Central European countries Hungarian citizens seem to be the most sceptic about the general usability of the Internet. Here the proportion of people rejecting the usage of Internet is the highest in the region. On the other hand, Estonian and Polish citizens seem to embrace this innovation in the highest proportions.

14.   Annex 2: Future research ideas

The spreading of info-communicational technologies presents a constantly recurring challenge on researchers. The topics range from traditional market research to various fields of social and policy research. The following list is a possible structuring of the most important research subjects.

1. *Impact assessment of info-communication policies.* Ex ante and ex post impact assessments are to be carried out in order to determine the impacts of regulatory and support measures and of organisation development actions of the constantly developing info-communicational policies. From a sociological point of view, the most important objectives of info-communication policies are the ones that concern equal opportunities in accessing info-communicational technologies of various actors of the society and of the economy
2. *Impacts of info-communication dimensions of other related policies.* It is to be shown how the info-communicational dimension of other policy fields (e.g. health, education, labour and environment protection and economic policy) shape the traditions of the given policy area and how the instruments and objectives of these policy fields are continuously being reformulated due to info-communicational development.
3. *Pattern of innovation spreading.* It is to be explored what patterns describe the spreading of information services, equipment and info-communicational knowledge in the social networks, in space, time, between and within social strata, in and among workplaces and different types of organisations.
4. *Efficiency.* It is a subject of constant interest how the introduction of info-communication technologies and the behavioural and organisational changes induced by them alter the lifestyle of households and individuals, increase the productivity of enterprises and increase the operational efficiency of institutions, especially of the different governmental and local governmental offices and how these changes make the operation of the latter two more democratic.
5. *Knowledge.* Information technologies change not just the media, the accessibility and the spreading patterns of human knowledge, but they alter its structure, its modelling system and beyond these, its content. With respect to these phenomena, it is to be explored for a large number of communities how the representation of culture, science and everyday knowledge changes.
6. *Mobility.* Due to development of the info-communication field, individuals and groups enhance their effectiveness and capabilities in learning and in interest enforcement. One of the recurring questions is how this changes their possibilities in social mobility. One of the most important problems here is analogous with the one that is in the focus of educational research for a century: whether the spreading of info-communication technologies reduces the existing differences of abilities and social capital, or, on the contrary, does it stabilize people's place in the social hierarchy by freezing or even increasing the inter-strata inequalities.
7. *Development of communities.* Further research has to reveal the new virtual and global communities being created through the Internet, their birth, structure and phasing out. It has to be described, how the impact of the aforementioned phenomena influences traditional ties of the individuals to living- and workplaces, settlements, regions and national institutions.
8. *Ethics.* Ethical norms and etiquette accompany all behaviour related to platforms like Internet or mobile phone. This is partly a sociological issue, where emphasis should be put on the subjects that concern the building of human relationships, the anonymity that can be realised on different info-communication platforms and the opportunity of mass mobilisation. Revealing the negative effects of the info-communication development that burdens human relationships, confidence and private life should also be kept on the agenda.

15.   Annex 3: Methodology

15.1   Methodology of the GPS 2002 survey

The survey was conducted in April-May 2002 (interviews were carried out between 4th April and 18th May) in all 15 EU Member States plus Switzerland and the US, using computer-aided telephone interviews. The survey was co-ordinated and executed by INRA Deutschland GmbH, Mölln. The population for this study is all persons aged 15 and over living in private households in the respective countries and speaking the respective national language(s). 11,832 interviews were successfully completed. The average interview length per country varied between 10 (Greece) and 20 minutes (Sweden).

Sampling: Target households were selected at random in all countries, either by random dialling techniques such as permutation of final digits or by drawing a random sample from official sources. Mostly a geographical stratification was implemented beforehand. For the selection of the target person common random keys were applied in all countries except for the UK where quota was used. In two cases (Spain, the US), screening had to be directed towards male respondents towards the very end of the field in order to gain gender representativeness.

There were three adjustments necessary in order to provide reliable data:

- Transformation from household sample to person sample. As only one person per household is interviewed, the described sample procedure provides a household sample, i.e. each household of the base population has the same likelihood of being in the sample but not each person. With the weighting stage of the transformation the equal likelihood of households is replaced mathematically by the equal likelihood of the individuals. To this end, each data set is multiplied by the amount of people in the household aged 15 or over. This number is subsequently divided by the average household size in order to obtain the actual case number.

- Adjustment of unweighted sample structure to the official statistic. Because random samples are not evenly distributed across all population strata, the distribution of unweighted samples regularly and systematically deviate from the population distribution from official statistics. Through the mathematical weighting the sample distribution was adjusted to the official statistics. The national weighting factor, which results from the iterative weighting, was included in the data material.

- Adjustment of weighted sample structure to the EU-15 Member States population. This weighting factor was necessary to calculate total figures according to the whole population of the European Union Member States. Furthermore it is useful to compare the EU with the US. Population sizes of each Member State are weighted to reduce the distortion based on the sample sizes in each country.

NOTE: The GPS 2002 questionnaire is available online and can be obtained from the SIBIS website: http://www.sibis-eu.org/sibis/statistics/questionnaires.htm.

Sample characteristics GPS 2002

	Total		EU-15	
	unweighted	weighted	unweighted	weighted
Total sample	**11832**	**11832**	**10306**	**10306**
Country				
B	585	585	-	-
DK	501	501	-	-
D	1001	1001	-	-

EL	505	505	-	-
E	1015	1015	-	-
F	1000	1000	-	-
IRL	500	500	-	-
I	1000	1000	-	-
L	500	500	-	-
NL	530	530	-	-
A	500	500	-	-
P	500	500	-	-
FIN	669	669	-	-
S	500	500	-	-
UK	1000	1000	-	-
EU-15	-	-	10306	10306
CH	522	522	-	-
US	1004	1004	-	-
Age groups				
Up to 24	1964	2019	1731	1651
25 to 49	5511	5309	4817	4593
50 to 64	2515	2495	2191	2209
65 and more	1833	2000	1558	1839
Don't know	9	9	9	14
Terminal education age				
Up to 13	695	717	693	728
14	715	742	701	881
15 to16	1794	1750	1641	1820
17 to 20	3587	3515	2997	2937
21 and more	3266	3275	2743	2495
Still studying	1687	1751	1463	1372
Don't know	88	81	77	73
Internet usage				
Total Internet use	6905	6908	5828	5610
Regular use (last 4 weeks)	5944	5948	4985	4781
Occasional use (last 12 months)	961	960	843	830
Non Internet use	5550	5643	4655	4548
Employment status				
Paid employment	4966	4853	4291	4133
Self-employed	935	941	809	799
Unemployed/ temporarily not working	701	683	621	631
In education	1687	1751	1463	1372
Retired or other not working	3441	3510	3034	3292
Don't know	102	94	88	80
Longstanding illness				
Existence of health limiting conditions	1898	1885	1645	1610
No existence of health limiting conditions	9868	9858	8607	8606
Don't know	66	90	54	90
Mobile phone usage				
Mobile phone owner	8202	8192	7301	7121

Teleworking				
Home based teleworkers	217	233	168	172
eHealth usage				
Searched for health-related info online	2712	2728	2149	2041
Searched and found health-related info online	2578	2592	2038	1916

15.2 Methodology of the GPS-NAS 2003 survey

The survey was conducted in January 2003 (interviews were carried out between 1st January and 31st January) in the 10 Newly Associated States Bulgaria, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovenia and Slovakia, using personal aided personal interviews (PAPI). The survey was co-ordinated and executed by NFO AISA Czech Republic, Prague. The population for this study is all persons aged 15 and over living in private households in the respective countries and speaking the respective national language(s). 10,379 interviews were successfully completed. The average interview length per country varied between 20 (Romania) and 40 minutes (Lithuania).

Sampling: Target households were selected at random in all countries, either by multistage stratified random-route sampling or by drawing a random sample from official sources. Mostly a geographical stratification was implemented beforehand. 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.

There were three adjustments necessary in order to provide reliable data:

- Transformation from household sample to person sample in Poland and Slovenia. As only one person per household is interviewed, the described sample procedure provides a household sample, i.e. each household of the base population has the same likelihood of being in the sample but not each person. With the weighting stage of the transformation the equal likelihood of households is replaced mathematically by the equal likelihood of the individuals. To this end, each data set is multiplied by the amount of people in the household aged 15 or over. This number is subsequently divided by the average household size in order to obtain the actual case number.

- Adjustment of unweighted sample structure to the official statistic. Because random samples are not evenly distributed across all population strata, the distribution of unweighted samples regularly and systematically deviate from the population distribution from official statistics. Through the mathematical weighting the sample distribution was adjusted to the official statistics. The national weighting factor, which results from the iterative weighting, was included in the data material.

- Adjustment of weighted sample structure to the NAS-10 countries population. This weighting factor was necessary to calculate total figures according to the whole population of the Newly Associated States. Furthermore it is useful to compare the NAS with the EU. Population sizes of each of the ten states are weighted to reduce the distortion based on the sample sizes in each country.

NOTE: The GPS-NAS 2003 questionnaire is available online and can be obtained from the SIBIS website: http://www.sibis-eu.org/sibis/statistics/questionnaires.htm.

Sample characteristics GPS-NAS 2003

	Total		NAS-10
	unweighted	weighted	weighted
Total sample	10379	10371	10379
Country			
BG	104	1008	-
CZ	1096	1096	-

EE	1001	1001	-
HU	1000	1000	-
LT	1017	1017	-
LV	1006	994	-
PL	1000	1000	-
RO	1054	1054	-
SI	102	1002	-
SK	1199	1199	-
NAS-10	-	-	10379-
Age groups			
Up to 24	2036	1825	1736
25 to 49	4473	4604	4593
50 to 64	2402	2202	2234
65 and more	1468	1740	1816
Long standing illness			
Existence of health limiting conditions	2272	2386	2555
No existence of health limiting conditions	7961	7836	7688
Don't know	146	149	137
Terminal education age			
Up to 13	374	433	575
14	658	682	855
15 to16	1099	1151	1099
17 to 20	4784	4816	4869
21 and more	1823	1833	1719
Still studying	1407	1213	1057
Never went to school	59	59	68
Don't know	175	184	138
Employment status			
Paid employment	4038	3999	3354
Self-employed	608	622	690
Unemployed/ temporarily not working	1272	1303	1506
In education	1407	1213	1057
Retired or other not working	3052	3231	3764
Don't know	2	3	9
Internet usage			
Never heard of the Internet (incl. don't know)	1349	1437	1506
Ever heard of the Internet	9030	8935	8773
Total Internet use	3700	3507	2773
Regular use (last 4 weeks)	3025	2852	2215
Occasional use (last 12 months)	675	655	559
Non Internet use	6679	6864	7606
Mobile phone usage			
Mobile phone owner	5763	5635	4534
Telework			
Home based teleworkers	162	162	120