Information Society in Hungary

Hungary has made huge strides since the end of the communist regime concerning its information technology infrastructure development. The telecom penetration in the early nineties was at about the same level as in the US in the early 1920s. Now, the fixed telephony household penetration is around 70%, while 8 out of 10 people have mobile phones, and mobile services are available everywhere. The Internet penetration and usage are also increasing, although at a somewhat less impressive speed than in western europe and some neighboring countries.

The following is a view of the increases in infrastructure, usage and services in Hungary over the past few years. There are also comparisons to further developed countries for review.

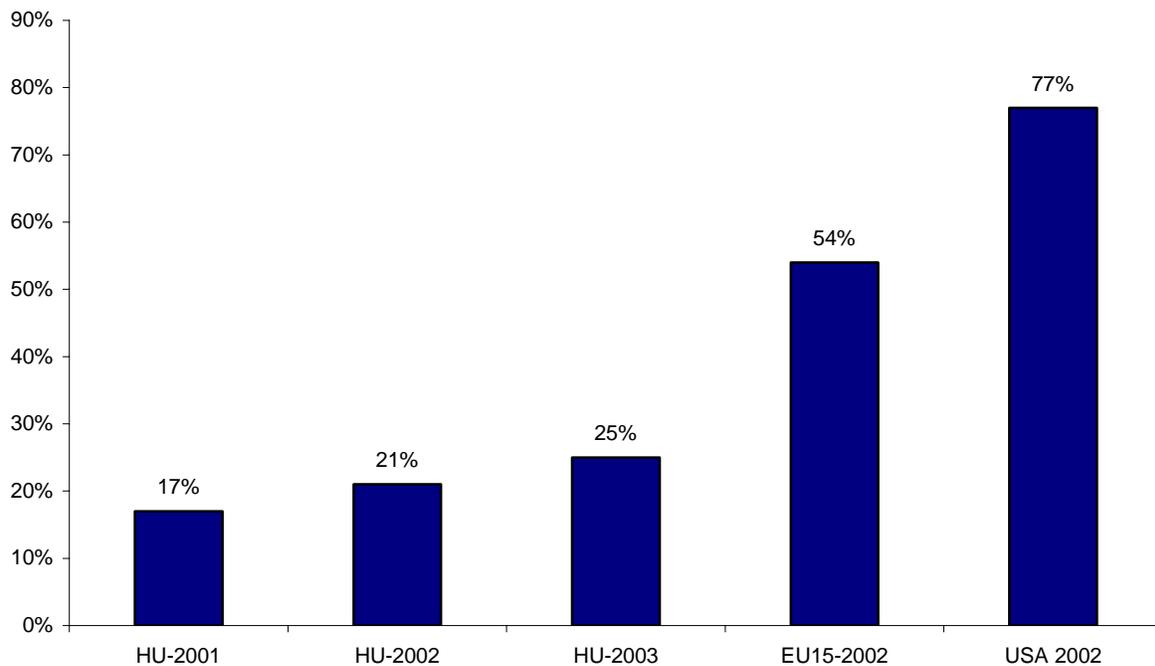## 1. Internet access, penetration, trends

Figure 1 Percent of Internet users among the population aged 15 and over in Hungary (2001-2003), in the EU and in the USA (2002) Source: TÁRKI-WIP2003
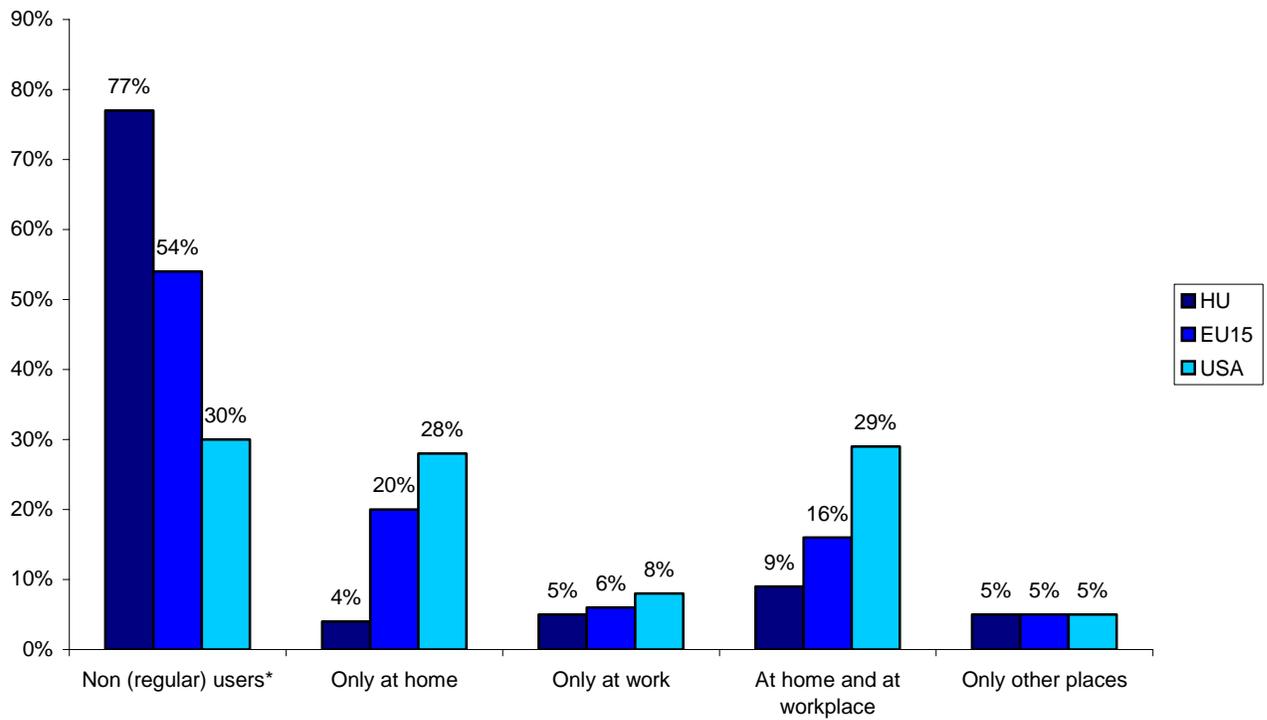
Figure 2 The location of Internet use in Hungary (2003), in the EU and in the USA (2002)
Source: TÁRKI-WIP surveys (HU), SIBIS project 2003 (EU15, USA).
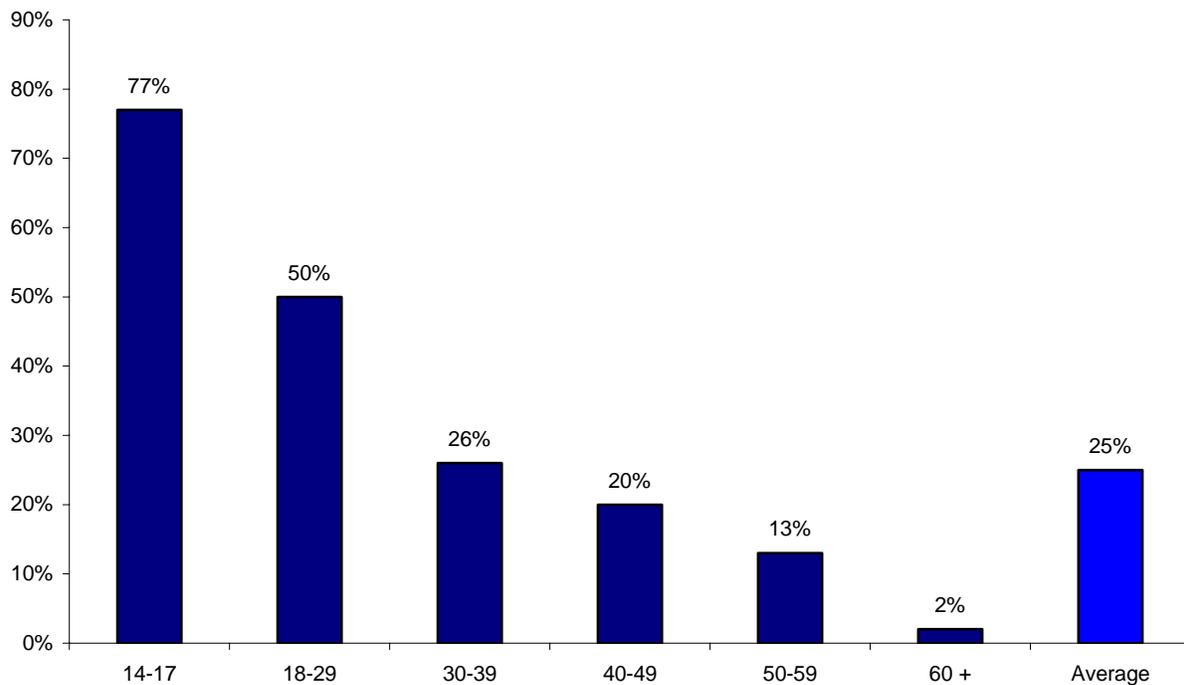* This category includes non-users and occasional users (less than once a month).

Figure 3 Percentage of Internet users in different age groups in Hungary

Most Internet users in Hungary are from the younger generations. More than 75% of the secondary school students, aged 14-17, use the Internet regularly and 50% of people between the ages of 18 and 29 use the Internet. In higher age groups though this number is much smaller, the ratio of Internet users among people above 40 is less than the national average of 25%. Even greater decreases in Internet usage is aparent in the 60+ age group.
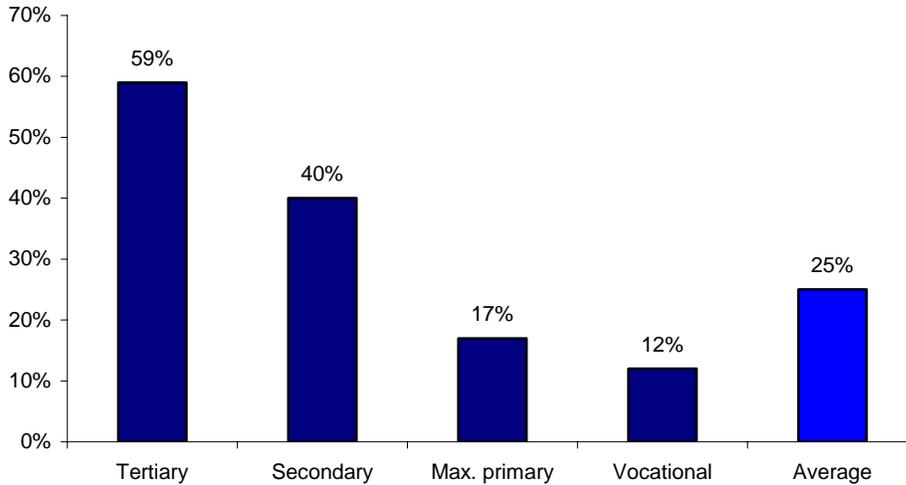

Figure 4 Percentage of Internet users by education levels Source: TÁRKI-WIP2003

Internet usage is also closely correlated to the level of education achieved. Although it is not a unique phenomenon, in , differences between people of higher and lower education level are higher than in the 15 member countries of the EU (see Figure 15 Digital gap in Hungary (2001-2003) and in the European Union (2002) values of the SIBIS Digital Gap Index and its components). From this point of view the secondary school qualification makes a significant difference in Internet usage. The penetration indicator of those people who acquire secondary school qualification is high above the national average, while the rate of people with lower education levels using the web is below the average.
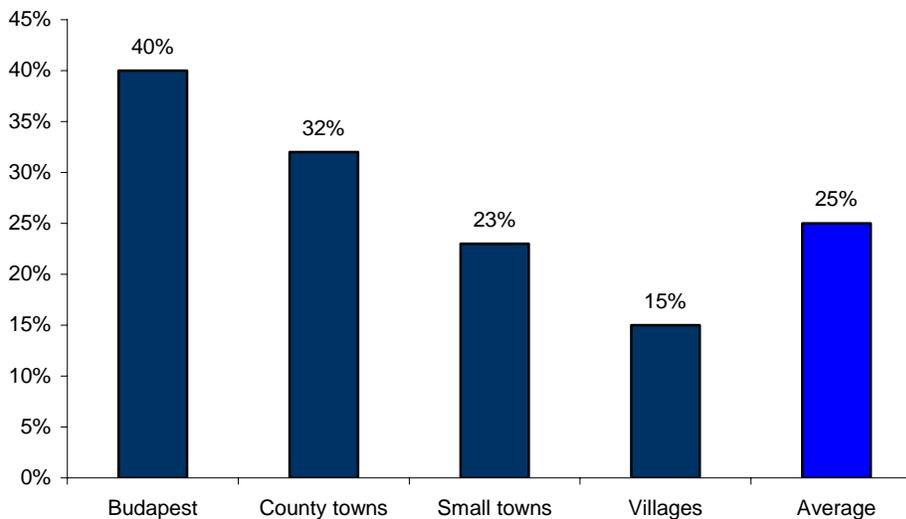

Figure 5 Percentage of Internet users by type of settlement
Source: TÁRKI-WIP2003

Internet usage is more prevalent in big cities than in small towns or villages. Out of the 2 million citizens of the capital, Budapest, 40% use the web by the age of 14, while this figure is 15% in villages.
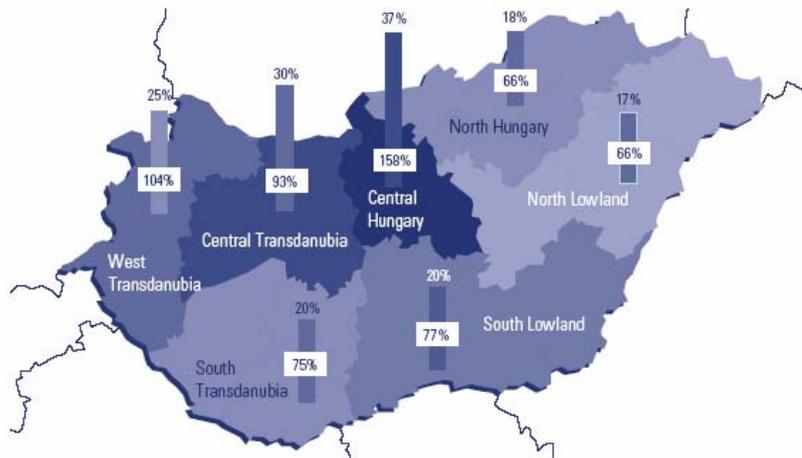

Figure 6 Percentage of Internet users by region in Hungary, 2003
The white squares show the percentage of the GDP of the region per capita compared to the national average. Source: TÁRKI-WIP2003, KSH

The difference in development of the regions is shown in the usage of Internet as well. The percentage of Internet users is significantly higher in West and North Transdanubia and Central Hungary, which are better economically regions than in the Eastern and Southern part of the country.
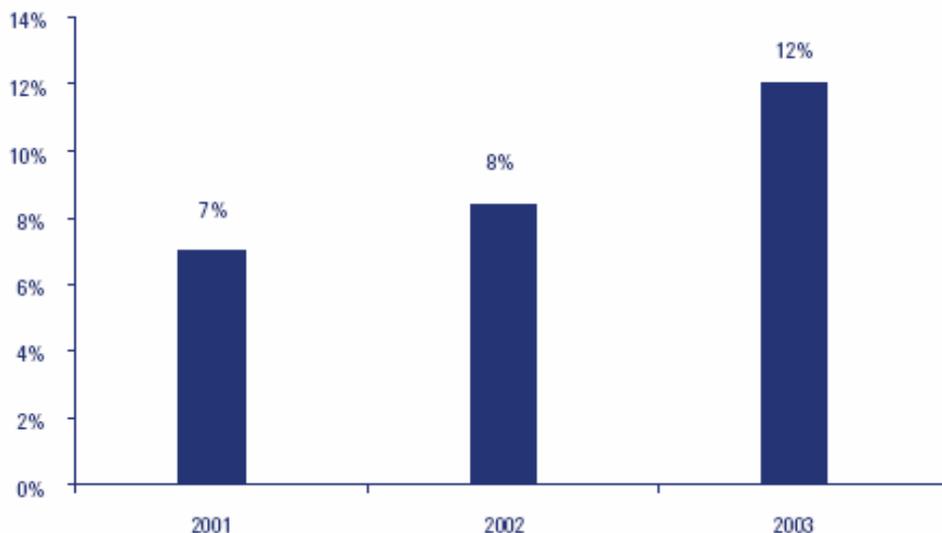

Figure 7 Percentage of households with Internet access in Hungary, 2001-2003
Source: TÁRKI-WIP2003

In 2003, 12% of the households had Internet access which is double the amount as in the past two years.
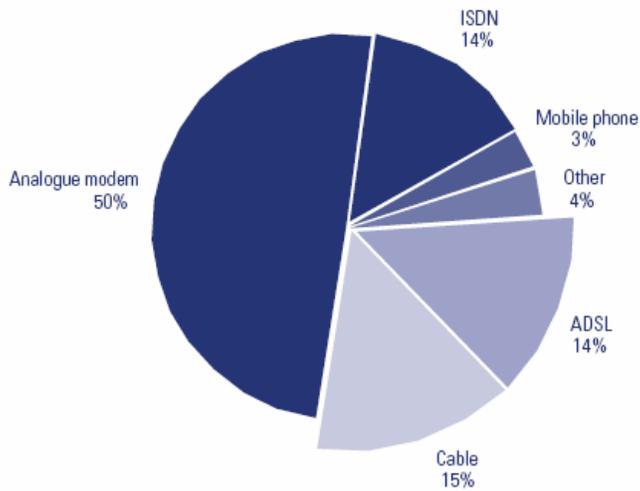
Figure 8 Type of the home Internet connection in Hungary, 2003
Source: TÁRKI-WIP2003

The majority (50%) of home Internet connections are established with an analogue modem, but it is worth noting that broadband access has reached 30% by 2003. The significant rate of growth of last year was especially welcome, as the present rate of home Internet connections is higher than that of the USA or the average of the European Union

Figure 9 Changes in the rate of Internet and broadband subscriptions 2000-2003
Source: KSH

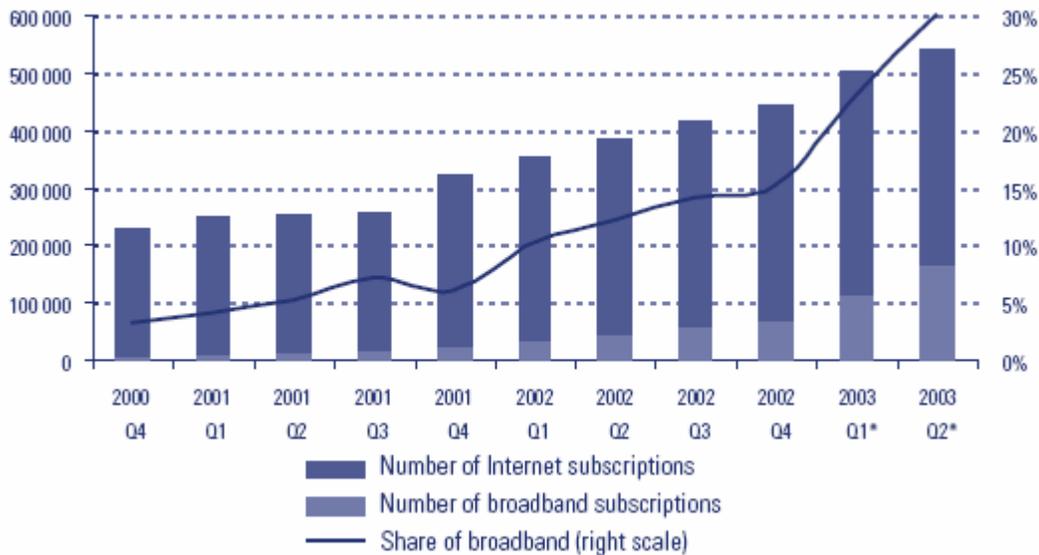# 2. Investment in People and Acquiring Information Skills

2.1 Youth in Hungary in the digital era

Just like in many other countries, younger generations in Hungary are ahead of other age groups in learning information technology. The objective of the Sulinet (SchoolNet) programme, introduced in 1996, is to provide infrastructure for primary and secondary school students to acquire a thorough knowledge of Internet and computer management. From 2003, the 5000 terminal points of the Sulinet programme are to be developed further within the frames of the Közháló (PublicNet) programme as part of the integrated public institution network. A new project was initiated last year to introduce computers in kindergartens.

The Ministry of Education, Ministry of Employment and Labour and the Ministry of Informatics and Communications introduced the Sulinet Express programme in January 2003 and launched it in the second half of the year. One aspect of the programme is to support computer purchases by teachers and families with children. Teachers, pupils, students and their parents and those who take part in accredited adult training can have a HUF 60,000 tax deduction towards the cost if they purchase, hire or lease a computer, a computer assembly or hardware from a company taking part in the programme. Sulinet products are available at 1,800 places in the country. By mid-December, the turnover of Sulinet Express has reached HUF 10 billion.

Schools and the Information Society

Sulinet in Hungary

Indicators show that the Hungarian educational institutions are well equipped for the digital age, but digital tools and the Internet do not play an important role in education yet. At the beginning of 2003 85% of the educational institutions had some kind of Internet connection. More than half (53%) of the institutions – thanks to the Sulinet network – can connect to the Internet through ISDN. 19.5% of the schools use leased lines, while 15.8% use ADSL to access the web. Only 12% of the schools have access through switched lines with modems.
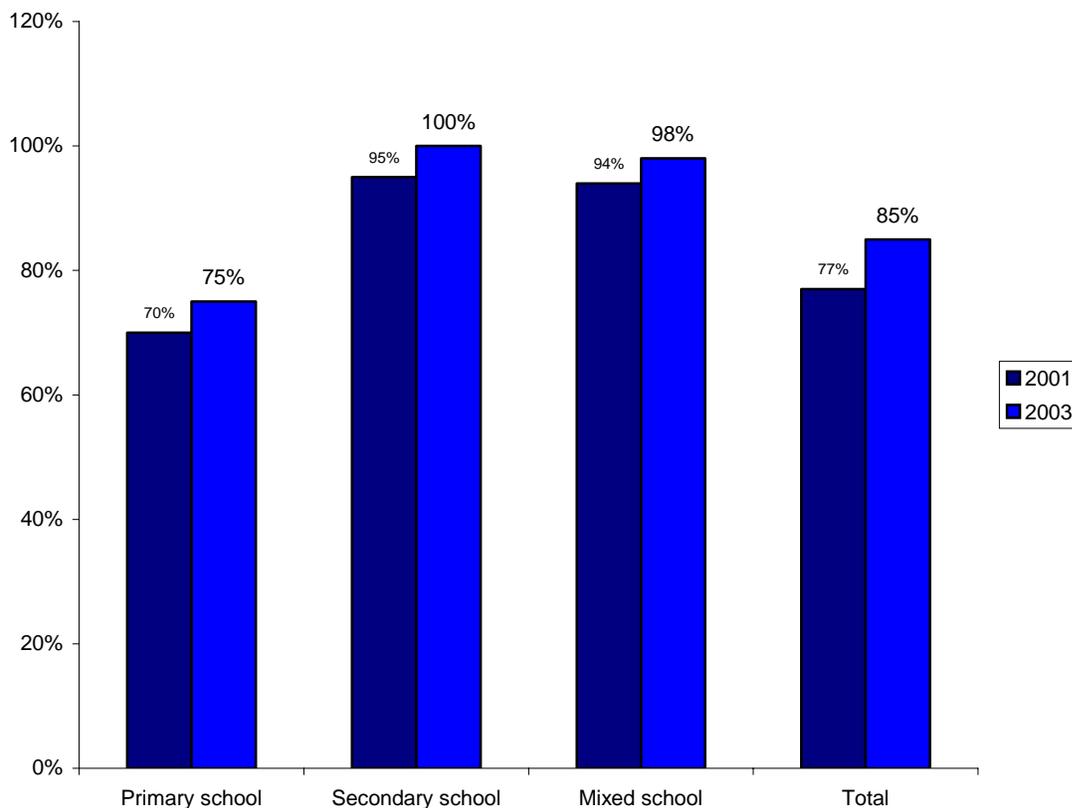
Figure 10 Percentage of primary and secondary schools having Internet access, 2001-2003*
Source: GKI Monitoring reports, 3rd quarter, 2001 and 1st quarter, 2003

33% of the primary and secondary schools had their own homepages. 18% of the teachers working in these institutions used computers for educational purposes, while the percentage of those, who use PCs as working tools is 32% and 80% of these computers are connected to the Internet.

Higher education institutions (colleges, universities) all have Internet access. 79% of the faculty developed their own Intranets and 96% have their own homepages as well. Desktop PCs can be found in almost all (98%) of the educational institutions and most of these (58%) computers are used by students exclusively.

2.2 Working in a knowledge based economy

Although the Internet and computers been integrated into everyday work, MITS still keeps several objectives in view. The most urgent tasks are the following:

• Modernization of the public administration in terms of work organization and management processes.
• Improving the efficiency of back office processes of business organizations.
• Providing modern services for supporting more efficient operation of the labour market and convergence of
  employers and employees; improving the system of education and training.
• Better involvement of the various disadvantaged social groups into performing tasks that require the usage
  of information and communication technologies (social cohesion); increasing the employment rate and
  reducing unemployment by precautions and tools managing the current situation.

Telework is another advanced application of work organization based on network connections. An estimation, based on academic research, shows that telecommuters make up 1-6% of the employed workforce. The number varies according to the narrow or broad interpretation of the length and frequency of time spent on work away from

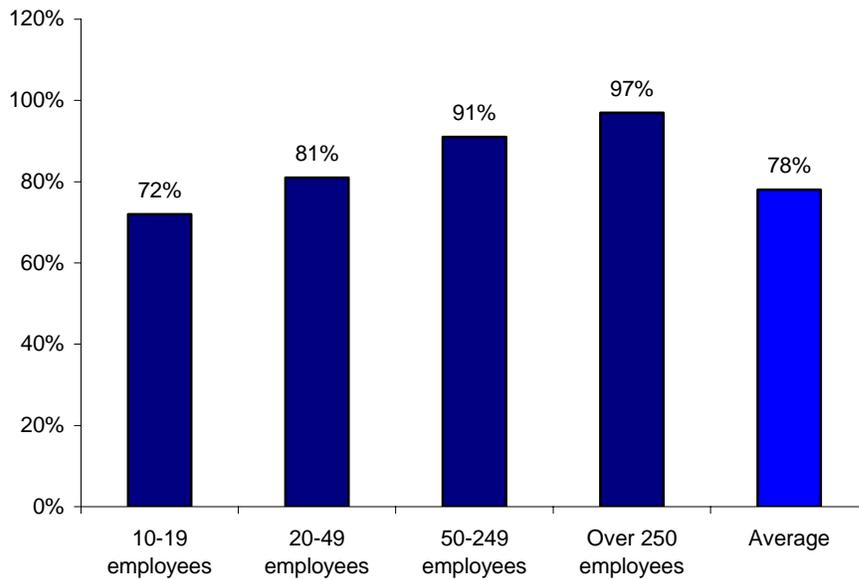the workplace and the interpretation of the task types..

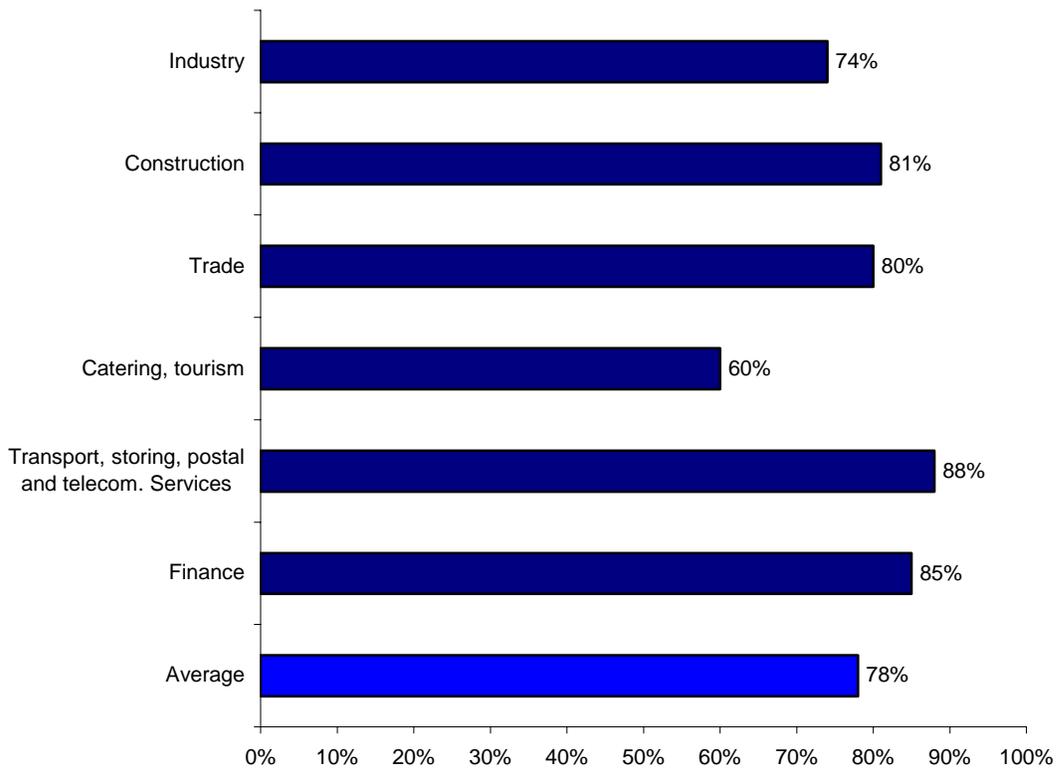Figure 11 Companies with Internet connection, 2003 Source: GKIeNet

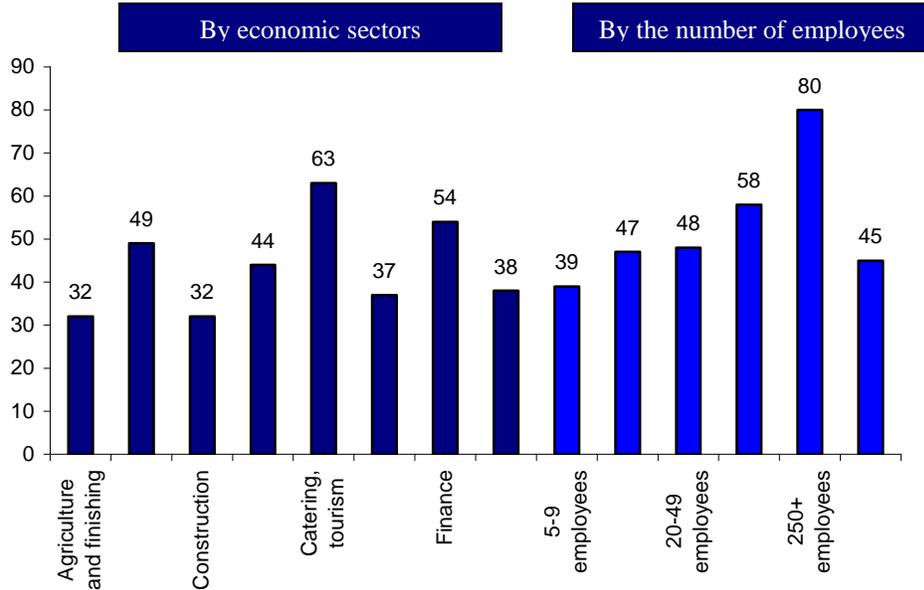Figure 12 Companies with home pages in Hungary, 2003
Source: GKIeNet

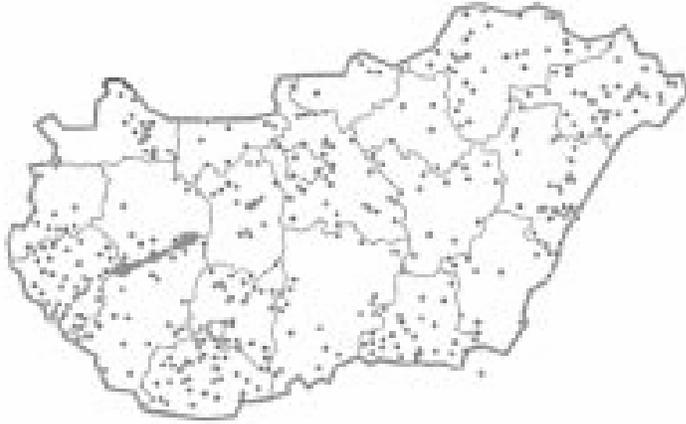Figure 18 Companies with home pages, 2003
Source: GKIeNet

2.3 Involvement and participation in the knowledge-based economy

The first target group of the Hungarian information society programmes were teachers and civil servants. The emphasis has shifted though to provide access for the elderly, nurses and women on maternity leave. At the same time the number of public access points, first as civil initiatives then with governmental support, increased in the last few years.

The Hungarian government has established the Közháló (PublicNet) project that aims at merging the network segments of public access under the co-ordination of the Ministry of Informatics. The project is based on an integrated plan of merging the networks with different functions, scope and user groups into one network that has a high performance technological base. Another objective is to create 2004 eMagyarország (eHungary) points by the end of 2004. The eMagyarország points are public access points providing high-level services in a franchise-like system and cover the entire area of the country, thus spreading digital culture. The Közháló project will revive the telecottage programme that made Hungary the country of telecottages by the end of the 90s.

Telecottages in Hungary

The telecottage movement was initially a local initiative but it later grew into a national association. So far 500 telecottages have been established in Hungary, mainly in regions with poorly developed infrastructure and economy, and another 500 are under construction.

Telecottages are usually established and operated by a civil society organization. The telecottage movement mobilized tools, services and money worth HUF 1.5 billion between 1994-1999. Working telecottages today provide nearly 60 different types of local services (educational, social, cultural, medical, economical, administrative and other) and 2 million village dwellers can access modern telecommunications and information technology. Approximately 1600-2000 workplaces have been created with 600-700 people already employed and there are about 7,000 more vacancies for teleworkers. The estimated number of volunteers is 5,000.

This program is not only about to giving chances to the rural regions but also to people with disabilities. Hungary holds the first place in running development and educational programmes that aim to evolve information technology environments for the blind. Digital Secondary School is an innovative and novel programme started in 2003. The online environment gives chances to those who cannot enter secondary education. Students may acquire the curriculum through modern technology and thereafter take the final examination. The pilot year was great success. Most of the participants of the first programmes were Roma, who take part actively in public and social life and come from the especially disadvantaged regions of Borsod-Abaúj-Zemplén county.

operating telecottages: 448

2.4 Digital gap in Hungary

Although the digital gap of the Hungarian society was significantly reduced in the last few years, it is still wider than in the 15 countries of the European Union.

The citizens of regions and the members of the various social groups have unequal access to the services of the Information Society. Acknowledging that, the European Union and the national governments have formulated action plans to bridge the digital gap between the different regions and social groups. The existence of digital gaps within a country can be traced back to various financial and cultural factors. Different social groups have different purchasing power, so there is disparity in affording expensive info-communicational devices and paying Internet related telecommunication fees. Inequality of the household income is in close connection with segmentation of the information society – this is why supporting the extension of public access becomes crucial.

Although primary schools offer the chance to acquire the skills and knowledge needed for Internet and computer management, the usage of digital tools is blocked by cultural factors – the lack of digital literacy and interest (lack of attractive and encouraging online content and services). It must also be noted that only 19% of the Hungarian population speak foreign languages, which is lower than that of the other accessing countries. For this reason, the Ministry of Education declared 2004 the year of language learning and initiated various programmes to encourage learning foreign languages.
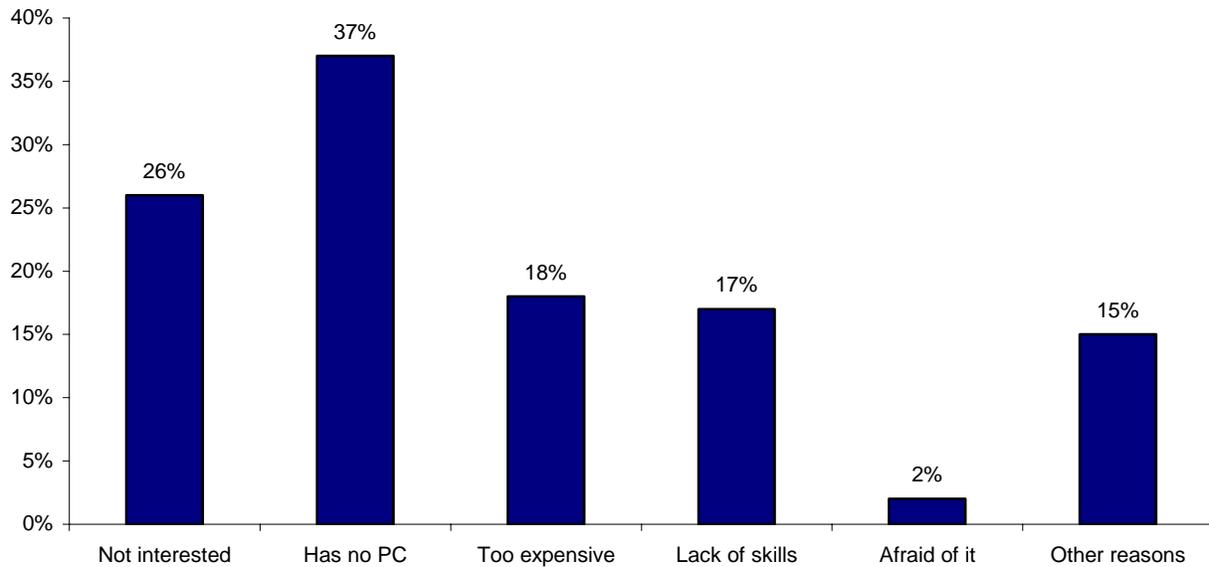
Figure 14 Main reasons for not using the Internet.
Source: TÁRKI-WIP2003

Political action aimed at spreading access creates a digital gap by having preference groups. In certain regions the digital gap can be closed by the ending the lack of telecommunications infrastructure needed for the information society services. In these regions, business incentives alone have been insufficient for the telecommunication enterprises to enter the market. To handle the problem efficiently, the Ministry of Informatics and Communications will prepare its broadband strategy before our accession to the EU.
In Hungary, the deepest digital gap in using ICT tools is attributed to the factors of age and the level of education.
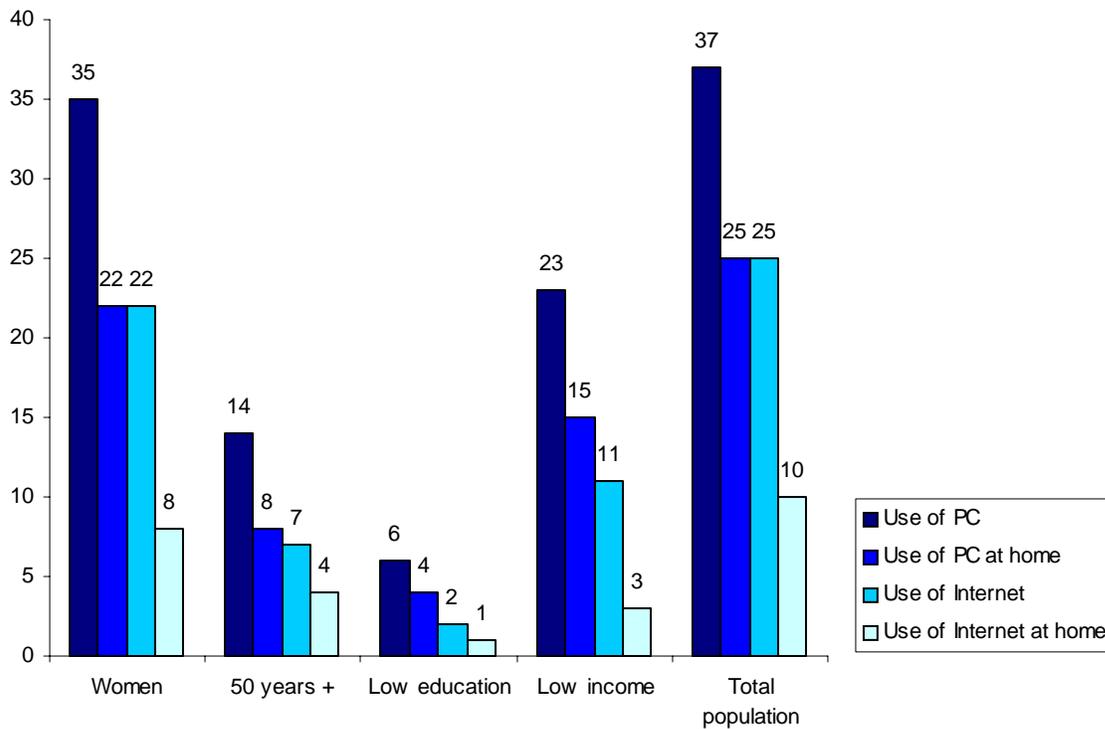
Figure 15 Dimensions of the digital gap in Hungary: rates of ICT usage
(%) women, the elderly, people with low education level, people with low income, and the whole sample
Source: TÁRKI-WIP2003

Young and highly educated people have a greater chance to take part in the Information Society than the elderly or people with low education level. It is mainly due to the fact that the promotion of computer and Internet usage in schools took high priority in the Hungarian information society strategy from the second half of the 90s (see Sulinet programme). Now there is a digital gap opened between those who acquired the knowledge of computer management within the frames of formal education and could use the World Wide Web at school and those who only have a chance to meet the digital culture only outside school.

The most relevant sociopolitical questions are the following. To what extent can students make use of their skills later in the labour market and other stages of social life? How can social groups with lower ICT tool usage catch up and how can these groups be involved in the Information Society?
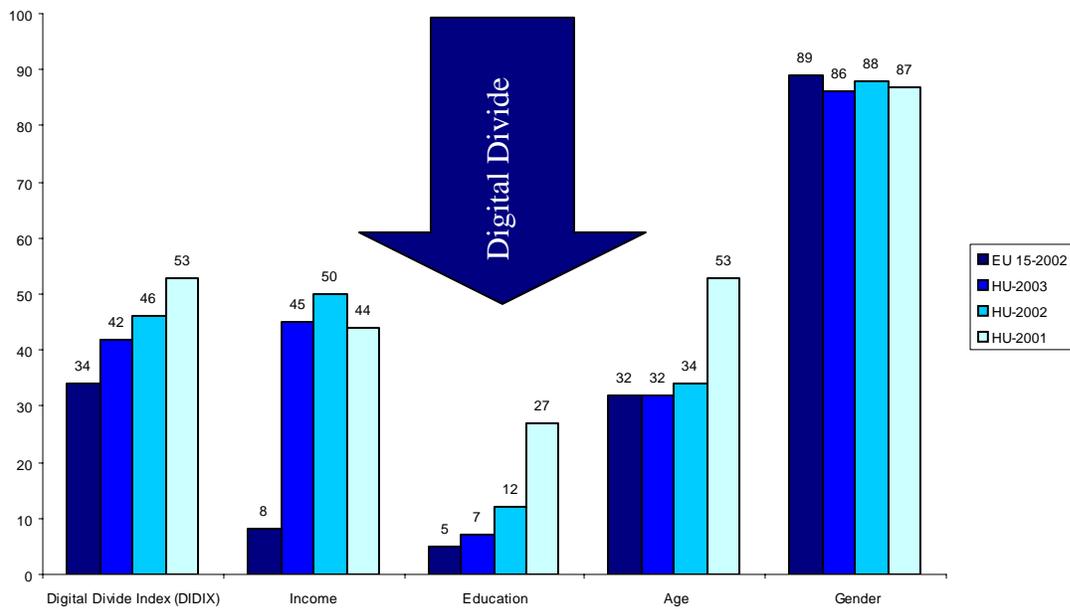
Figure 16 Digital gap in Hungary (2001-2003) and in the European Union (2002)
Values of the SIBIS Digital Gap Index and its components

The value of the SIBIS Digital Gap Index (DIVIX) can vary between 0 and 100. The lower the value of the index the wider the digital gap. For the detailed construction of the index, see Hüsing and Selhofer, 2002 . Data source: ITTK-TÁRKI World Internet Project, Hungarian report, 2002 , EU15 SIBIS project . The sample represents population aged 15 or above.

3. Promoting the Usage of Internet

3.1 The state of eCommerce

Online economic activity has boomed in Hungary in 2003. Legislative measures accelerating the processes were adopted (eCommerce Act, Digital Signature Act) and the first eMarketplaces were established and clusterization – generated also by the Internet – started.
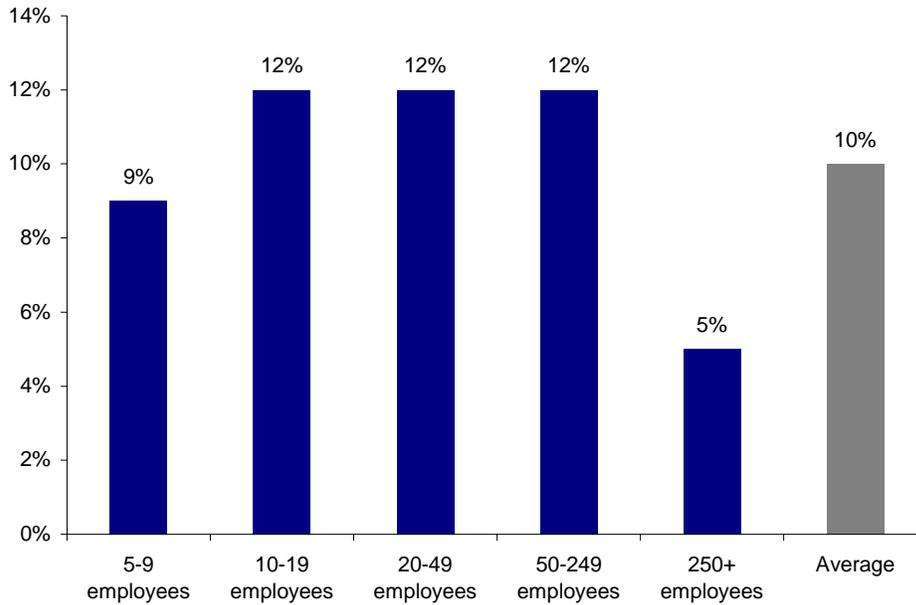
Figure 17 Percentage of companies selling through the Internet by the number of employees in Hungary, 2003
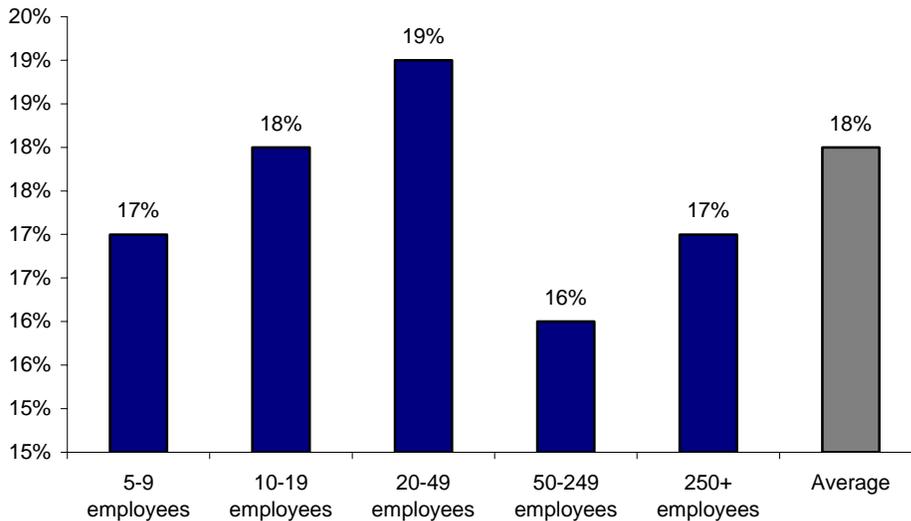Source: GKIeNet

Figure 18 Percentage of companies buying through the Internet by the number of employees in Hungary, 2003
Source: GKIeNet

3.2 eGovernment (services and strategy)

Although 40% of Hungarian public services can be accessed online, this high ratio hides the fact that 85% of these online services are simply information providers. There are some institutions offering electronic administration but only a statistically negligible number of customers take the opportunity. Therefore, the development of the Hungarian eGovernment is focused around the following two points:
• Satisfying customer needs at the highest level: replacing the former service-oriented operation with a

customer-oriented approach (including the goal of providing access to the 20 public services specified by the eEurope 2005 programme as soon as possible).
• Improving the efficiency of administration and its inner processes, making services electronically accessible (including the formulation of a uniform administrative data management and data model, formation and implementation of the governmental digital signature system, integration of the informational and telecommunications systems and applications within the government).
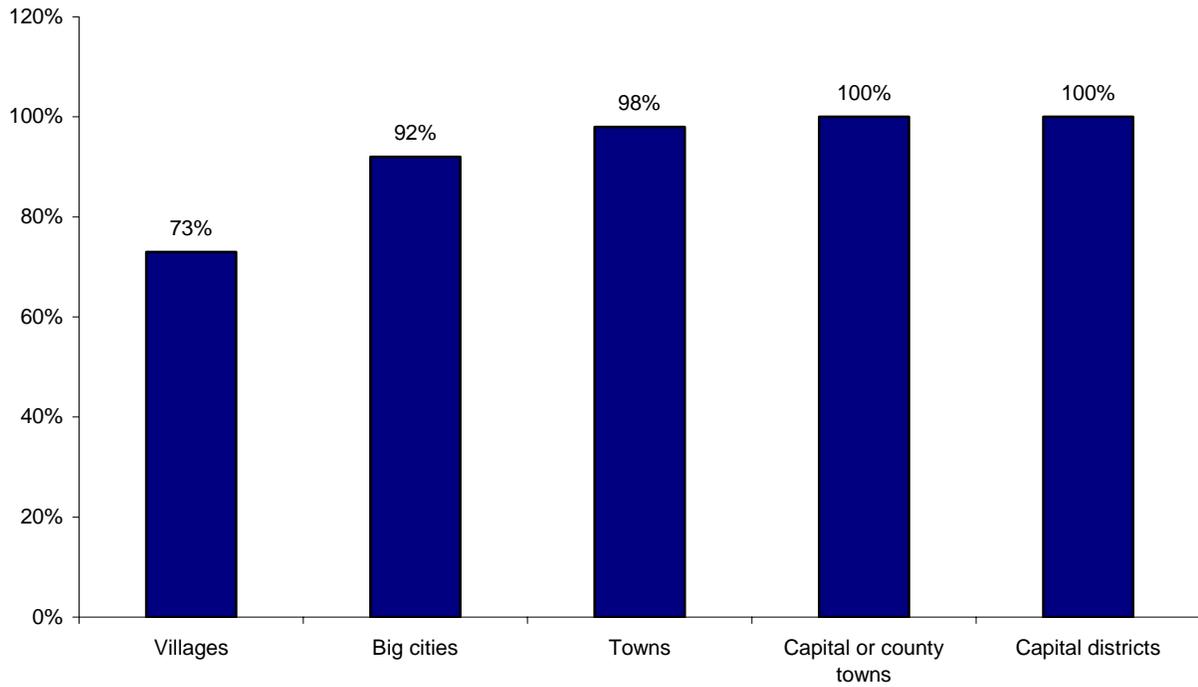

Figure 19 Percentage of local governments with Internet connectivity in Hungary, 2003
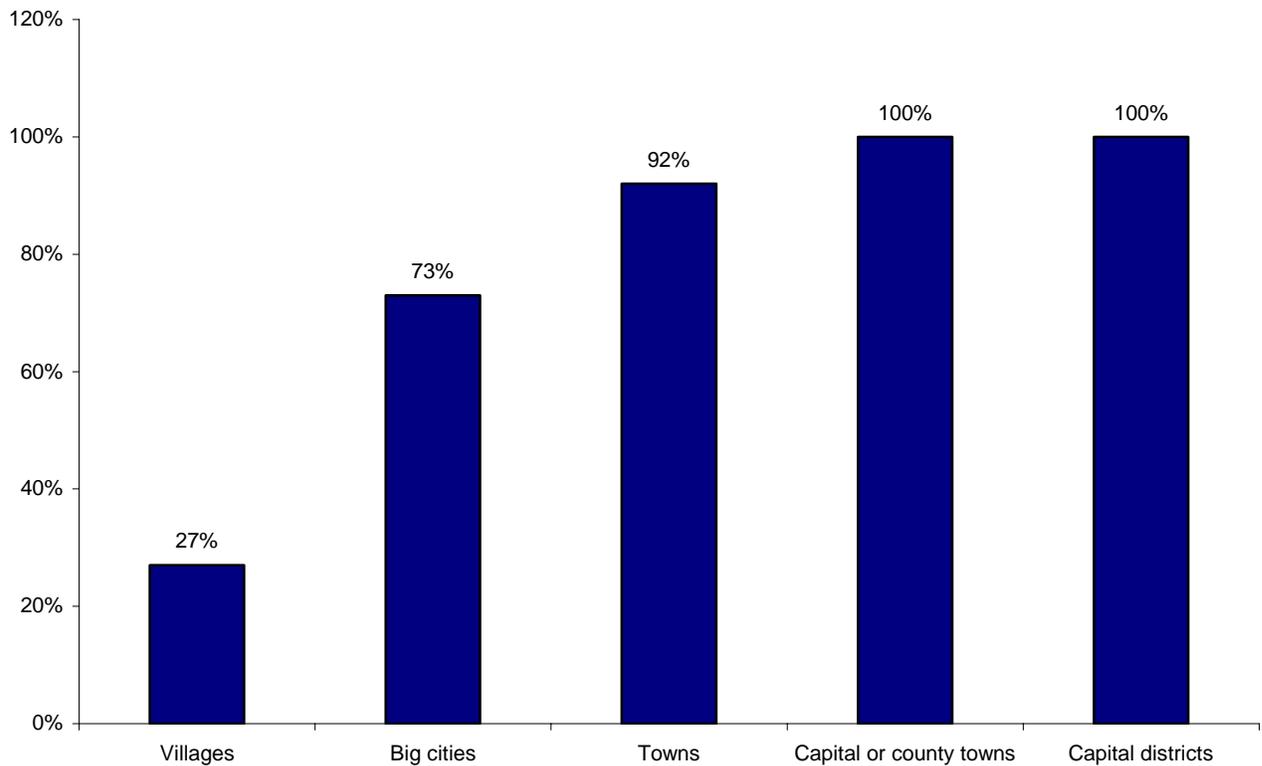Source: GKIeNet

Figure 20 Percentage of local governments with homepages in Hungary, 2003
Source: GKIeNet

The electronic services provided by the Tax and Financial Control Administration (APEH) for large taxpayers is extremely popular but the authority offers several online services for its other customers as well. For example, in 2002 about 11,000 customers addressed the APEH officials using e-mail and more than 1 million income tax returns were processed with programs downloaded from the Internet.

	Total number of returns	Downloaded from the Internet
2001	5.045.866	259.497
2002	5.330.955	1.136.617

Table 1 Number of income tax returns processed with supporting software in Hungary, 2003
Source: APEH, 2003

3.3 Online health care

MITS extends the already launched Hungarian eHealth care projects with the following programmes of high importance:
• Developing electronic content services for the target professional audience and providing information for the inhabitants through Internet and call centre channels.
• Developing integrated (interoperational) information systems of the medical and social service providers and improving the conditions of these systems.
• Developing a medical and social indicator system and a reporting system (public health reporting, data bank); modernization of the monitoring system, harmonization with the European recommendations and the international data provision obligations; operating an Internet based medical data bank.
• Encouraging eHealth research, development and training activity and innovative culture by elaborating and presenting the best practices of information applications; distributing best practices.
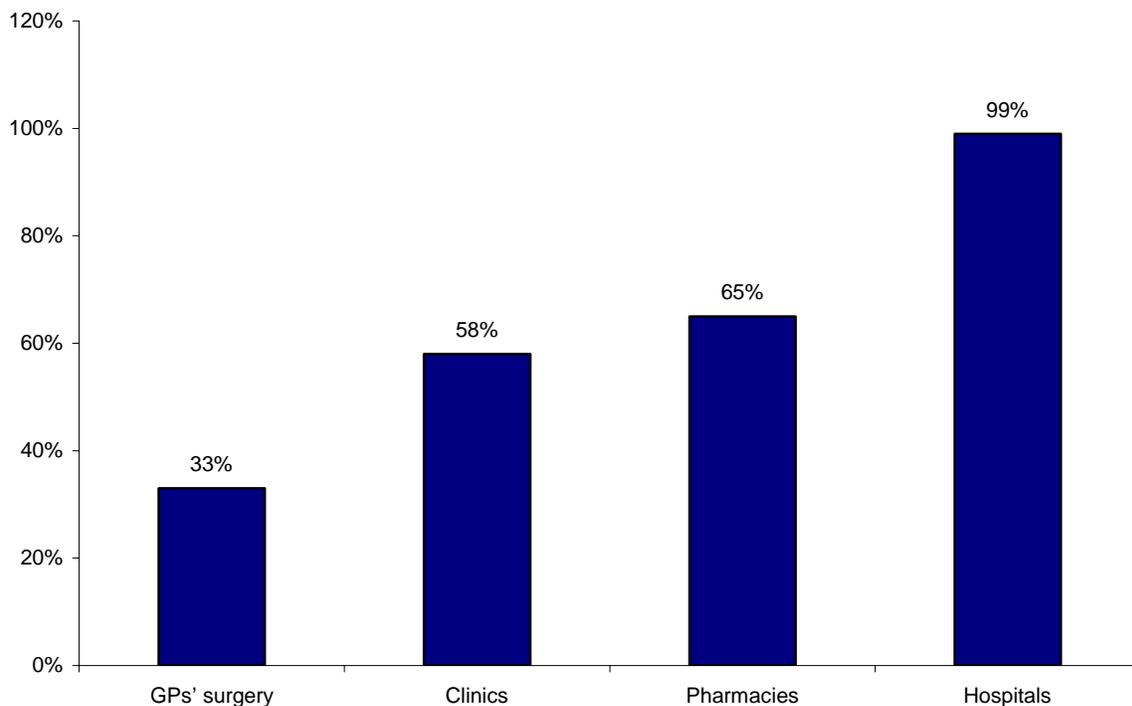

Figure 21 Percentage of medical institutions with Internet connectivity in Hungary, 2003
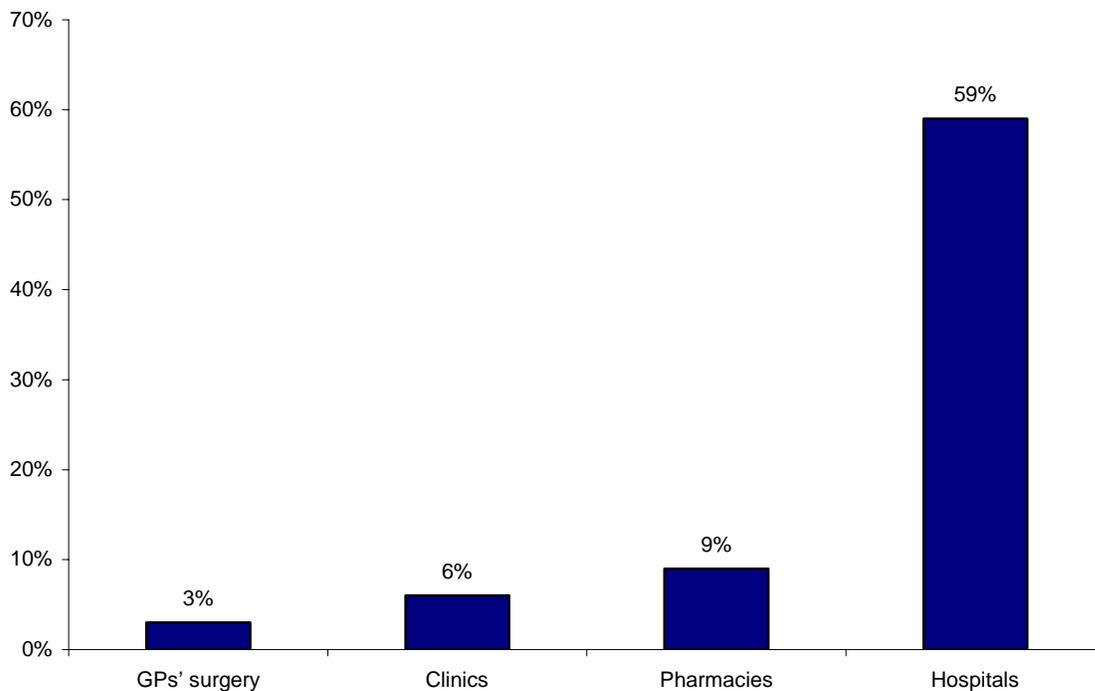Source: GKIeNet

Figure 22 Percentage of medical institutions with homepages in Hungary, 2003
Source: GKIeNet

3.4 Digital content

Introducing digital television services has led to a multi-channel and broadband media industry that will probably show advancements in the field of content in 2004. Besides the programs facilitating wider availability of business and public information, we expect significant achievements regarding cultural content. The National Digital Data Bank was put into operation in 2003 within the framework of former national content development. The data bank provides a uniform, systematic and interoperational interface for the formerly isolated content development movements like the brand new National Audiovisual Archive project or the various museum and local community programmes. This way we can extend the pioneer initiatives: Neumann János Digital Library, which has started to digitalize and distribute national culture through the network, or the unique Digital Literary Academy, which provides free access to contemporary Hungarian literature (prominent writers and poets gain high scholarship from the government if they publish their work on the web).

Thanks to Sulinet launched by the Ministry of Education, today 70% of the secondary and primary schools have Internet access, thus so schools may become the engines of content development in the next few years. Sulinet Digital Curriculum is a well-elaborated, comprehensive programme keeping the principles of recoverability and high value in view. The programme covers support not only for the development of curricula but for establishing development environments, improving hardware and training as well.

3.5 Intelligent transport systems

The internationally observed trends of the information economy, namely the growing number of eBusiness and telework solutions, which decrease traffic and transport needs, can not be observed in Hungary yet. Needs for mobility are growing in line with the GDP. The developing info-communication technologies also make their contribution to this process by making information easily accessible, thus expanding business contacts and making tourism, culture and shopping facilities well-known, all of which - in return- generate more mobility needs.

Information infrastructure as the background of intelligent transport systems does not compose a coherent, integrated system, that is why it is very important to make the lines of cooperation between the different players of the "telematic" market tighter. Most of the solutions applied today concentrate on collecting and processing traffic data, providing electronic timetables and improving the efficiency of business and operational processes within companies.

The main strategic guidelines concerning intelligent transport systems are the following:
• Development of transport information systems, especially establishment of transport systems based on Internet technology. Creation of a comprehensive, integrated information system would make information related to all modes of transport readily available.
• Development of electronic information services with emphasis on the establishment of electronic payment and ticketing systems. A passenger transport pilot-system (of a town or of a service provider) is in planning to be created.
• Development of tools, technology and procedures capable of influencing traffic flow. It is significant to make onboard navigation and information equipment popular among users by promoting and encouraging the purchase of such systems. The mid-term objective is to have these navigation systems built into the newly manufactured cars and to operate traffic control and travel information systems on the sections of the motorway network with heavy traffic load.

3.6 Environmental protection online

Environmental protection is a complex area where information flow plays a prominent part. The availability of environmental information in Hungary is controlled by the ratification of the Aarhus Convention. Public environment data services defined by eEurope 2005 are scheduled to be implemented by the end of 2006 and 70% of these services will have integrated transactional solutions. The portal system providing public access to environment, environmental protection, meteorology and water management databases will also be built by the end of 2006.