



SIBIS

Romania

Country Report No.8

No.8



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. This report analyses the outcomes with respect to Romania comparing it to the other NAS but also to EU-15 countries, Switzerland and the USA, for which the same survey was already carried out in 2002. 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 Romania 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).

Dunarea de Jos University of Galati (DJUG) is a higher education institution with several faculties situated in 6 counties, with graduating programs in different fields: polytechnic, sciences, letters, agriculture/food industry/fishery, economics, law etc.

DJUG has two special Departments: for Continuing Education (CE) and for Open and Distance Learning (ODL), targeting different graduation level people.

The activity covers the initial vocational professional training and the lifelong learning, as too. DJUG developed an important number of European projects: Phare (Tempus, Leonardo, Socrates and joint projects) and 5FP (INCO), in which DJUG was the coordinator and/or the contractor. Highlights: projects for ODL and CE development (ICT based, including e-learning, remote tutorial, multimedia products), training in TQM, institutional and infrastructure development, new didactic activities, research projects (food industry, fishery, energy, computer sciences, robotics, electronics, underwater technologies etc.), social and economic impact projects (targeting SMEs' activity, training/retraining, initial vocational and lifelong training, people training) etc.

DJUG is the most renowned university in the southeast of Romania (more than 11 000 students), being situated in an important geographic region (2-SE-Romania, incl. 6 counties) with complex social and economic problems. We cooperate with other social partners: to transfer knowledge and expertise, to assist the growth of new technology SMEs and the development of innovative start-up firms; for other RTD activities to validate and disseminate instruments and approaches to innovative enterprise creation and development.

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1. Executive Summary

Historically, Romania has shown regional leadership in information technology: the first computer was designed and manufactured in Romania in 1957, launching the nation's indigenous IT industry, as the country was a significant exporter of hardware and software in Eastern Europe during the 1990s.

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

Many governmental actions and measures refer to the ICT domain - especially since 2000, regarding services, education, administration and labour structure. So, the new founded Ministry of Communications and Information Technology (MCTI) organised actions for a suit of projects aiming at: IT product packets and systems for public services (information, social inclusion, virtual libraries, taxes), promotion of IT and high-tech research (in academic but also commercial milieus), R&D results transfer for free to industry, encourage SME economic activities in co-operation, using efficient information channels, supporting tourism and the management in the field through IT&C means. Important reference is shown towards e-Administration, as a goal and way to improve the relation between the citizen and local or central administration (<http://www.gov.ro/objective/map/e-Administration.pdf>). Thus, vocational and continuous education based on ICT and Internet is on full progress at the moment. There are also projects and funds allocated to provide computers and IT services for the countryside, created to extend Internet connectivity in schools, administration and other issues (social problems and technical advice).

This report represents an important deliverable of the SIBIS project (Statistical Indicators Benchmarking the Information Society), funded by the European Commission under the "Information Society Technology" Program, running from January 2001 to June 2003. 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".

The Romania report is organised in six chapters for each of the five topics regarding telecommunications and access, education, work, social inclusion and e-government. Its aim is to define the gaps in the statistical coverage for Romania e-society.

This deliverable is based on a previous report aimed to set the scene on several topics, which identify the existing indicators for the issues that already exist in Romania.

The first three chapters are designed to give the reader an idea of the main outcomes (Executive Summary), the context (Introduction) and the topic research and indicators developed for Romania within the SIBIS framework.

The core of the report is the analysis of indicators, regarding telecommunication and access, education, work, social inclusion and e-government provided in chapters 4, 5, 6, 7, 8, and 9, based on a survey (a General Population Survey) conducted on the five topics mentioned above.

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 Romania and the SIBIS Topic Areas

Historically, Romania has shown regional leadership in information technology: the first computer was designed and manufactured in Romania in 1957, launching the nation's indigenous IT industry, as the country was a significant exporter of hardware and software in Eastern Europe during the 1990s.

Starting with 1991 the Romanian government has promoted studies and strategic plans aiming at ICT (Information Communication Technology) development in Romania, realised by (France /Sema-Group, Denmark/DataCentralen, USA/TDA). There are now parts of the National strategy for Romanian Preparation to Access to the European Union. In 1998 the Romanian Government approved the first National Strategy for Acceleration of Informational Society Implementation Rhythm and The Action Program for IT Sector Development in Romania (www.ici.ro/romania/internet_fiesta/prezentari/fadm.html). A well-defined and substantiated action-plan was made in 2002, after eEurope+ Action-Plan, under the name of Romanian Government Strategy for IT Sector Development, by which Romania makes a commitment to adopt and to implement eEurope goals and its already defined actions.

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

Many governmental actions and measures refer to the ICT domain - especially since 2000, regarding services, education, administration and labour structure. The new founded Ministry

of Communications and Information Technology (MCTI) organised actions for projects aiming at: IT product packets and systems for public services (information, social inclusion, virtual libraries, taxes), promotion of IT and high tech research (in academic but also commercial milieus), R&D results transfer for free to industry, encourage SME economic activities in co-operation using efficient information channels, supporting tourism and the management in the field through IT&C means. There are also projects and funds allocated to provide computers and IT services for the countryside, created to extend Internet connectivity in schools, administration and other issues (social problems and technical advice).

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On this basis, the Romanian partner in SIBIS focuses on five topics:

1. Telecommunication and Access,
2. Education,
3. Work and Skills, Employment,
4. Social inclusion
5. e-Government.

Specific statistical indicators were identified in WP2, in order to establish the status and progress of the above topics in Romania.

Telecommunication and Access

Telecommunication and Access have previously been defined in the SIBIS project as follows:

- **Telecommunication:** Conveyance of speech, music and other sounds, visual images or signals by electric, magnetic, electro-magnetic, electro-chemical or electro-mechanical means. Telecommunication networks are the infrastructure by which the entire new economy is enabled. In their raw state these networks provide the infrastructure on which increasingly large proportions of national economic wealth is generated; they have, to some extent, taken over the traditional infrastructure – road and rail – as carriers of national prosperity.
- **Access:** The ability to retrieve data, graphics, sound, text etc whether on-line or offline. Access is a term used to describe the various mechanisms by which citizens, business, and the public sector interact with the networks. They include PCs and telephones, and increasingly new devices such as interactive TV, multimedia kiosks and Internet-enabled or Bluetooth (and other wireless) appliances.

Based on policy documents and other relevant sources, the statistical indicators in the area of telecommunication and access were identified for Romania in WP2. These include: Cable TV subscribers, digital main lines, mobile subscriptions, Internet applications used in the past 3 months, Internet access affordability-high speed connection, Internet access outside the home, main lines per 100 inhabitants, households with home access to the Internet, the number of mobile phone subscribers in business and in personal communication etc.

Within the SIBIS framework, during the year 2003 a GPS (General Population Survey) (WP3) has been conducted in all NAS 10 countries, including Romania, resulting in relevant data and several charts. Moreover, gaps regarding the Romanian position in the field of telecommunication and access in Europe were identified.

Education

The 'Education' concept is changing. From the formal and pre-defined curriculum in the industrial society, education is today redefined as lifelong learning in the information society. This transformation process is of dual nature:

- On one hand, the educational system is due to adapt to a knowledge economy both in terms of organisational settings, infrastructures and partnerships, pedagogy, curricula and teachers' qualifications.
- On the other hand, users of education at all levels and ages should need to develop another mindset, as moving from an instruction-based understanding of education to a paradigm, where the target-person most likely will be expected to take a much larger co-responsibility for identifying and continuously developing his/her skills basis, in a variety of ways and settings. Likewise, companies and institutions are in the process of adapting to a business environment where skills and knowledge play a central role in overall economic performance.

Whether we talk about policy developments related to educational systems or the adaptation process of the target-person, companies and organisations, learning and working in a knowledge economy – ICT are viewed as a critical enabler.

Relevant indicators on Education and Skills for Romania were identified and analysed within the SIBIS framework (WP2). The study contains a framework of indicators such as computers in schools and universities (data from national/other sources), company-provided training, training provided by other organisations, self-directed learning, modes of training (use of eLearning).

According to SIBIS studies, the Romanian ICT strategy to advance towards knowledge economy regarding Education based on:

- Schools endowment with computers and Internet connection (initiative "every school with at least one computer connected to Internet until year 2004");
- Teachers' preparation to use computers and new methods in education;
- Centres created for long life learning and qualification flexibility.

can be analysed and the activities could be improved.

Work and Skills, Employment

Skills are the necessary basis (precondition) for the deployment of individuals in the production process (application: *work organisation*), which in turn creates the foundation for *employment* and the value it derives from (outcomes such as productivity, remuneration, work satisfaction). In this sense, employment is the outcome of the labour market procedures that translate skills into work. Whereas skills and the deployment of workers in the production process are not ends in themselves, employment is the socially accepted system through which the capabilities, preferences and needs of individuals are brought to a match. Ultimately, the impact of ICTs on skills and the organisation of work have to be measured according to their contribution to the goal of socially and individually satisfactory forms of employment.

Romania WP2 and the GPS chapters contain the analysis of relevant results on social inclusion and some cross-analysis, e.g. combining results on Internet users by socio-economic characteristics.

Social inclusion

The Romanian report on social inclusion developed within SIBIS' WP 2 explores the main issues in literature that are relevant for a better understanding of the studied area, for the related policy making, and for directing and influencing research regarding the topic of social inclusion and the Information Society. It also briefly revisits definitions of some of the key terms, pointing at enhancing the overall comprehensibility, and offering a more complete understanding of the topic.

The chapter contains the analysis of all relevant results on social inclusion and some cross-analysis, as combining results on Internet users with socio-economic characteristics such as Internet use by place of access.

e-Government

Taking into consideration the priority objectives stated in the 2001, as well as the weaknesses identified in the European Commission's regular reports on the Romanian progress towards accession, the Government established a priority policy in designing and adopting a strategy for public administration reform.

In May 2002 the Romanian Government approved the Government Strategy for ICT Sector development as a framework for reaching the Informational Society, establishing objectives and actions according the EU Directive. e-Government strategy is a part of this policy document (<http://www.rnc.ro/strategie2000/StrategieTICfebr2000.htm>).

E-government plays an important function in mediating government actions. Its role will continue to grow as communication technologies become more widespread. Thus, communication technologies have already changed the government's manner to operate, facilitating information dissemination, communication, and transactions. E-government comprises a number of functions currently filled by traditional means of communication. Transactions that today require face-to-face contact, letter writing, or telephone communication may soon be replaced by electronic interaction.

Romania WP2 examines the progress-based implementation of the e-government. Because of its early stage of development, the country still devotes funds to this issue. It seems that, in some areas, e-government already appears to be a worthwhile strategy, yet it is still early for a well-founded implementation. Even so, it can be said that the rapid pace of change in the use of information technology has a significant impact on the government today.

The strategic objectives consist of specifying the political and administrative responsibilities of the Government and improving the quality of public policies. The first objective can be achieved by clearly separating the roles of political from administrative management, and the second by increasing the quality of designing and implementing public policies, by citizen participation and improving the effectiveness of cooperation on administrative institutions.

A modernization reform cannot be envisaged without implementing specific IT methods, and so the Ministry of Public Administration has elaborated the Government Strategy concerning e-Administration Action Plan, adopted by the Government. The main aim of this strategy is to connect the administration to the citizen, at all levels, to encourage public participation in the interactive processes that directly concern the people.

The strategy's main objective is the development of a nationwide IT network with the potential to interlink all local and central administration units, designed on the Internet/Intranet model. For the counties with no network, a nationwide extranet network will be created. Thus, the unique network of the public administration will become the deliverer of services with access of citizens and of the interested institutions to all levels of central and local administration.

These aims and the supporting provisions of the strategy with regard to the National Action Plan “e-Administration” correspond with the February 2001 proposals of the European Union concerning the categories of basic public services that should be offered to citizens, and as shown in national “e-Government” plans of other candidate and member states.

The implementation of the strategy started with adopting the G.O. no. 24/30.01.2002 on the collection of local tax by electronic means. According to its provisions, the local public authorities are obliged to provide implementation of an electronic system for collecting local tax in every town and in every city.

During the first meeting of the Government Council for monitoring public administration reform the Memorandum concerning the priority actions for speeding up the public administration reform process, with precise deadlines, was approved. At the same time, the Central Unit for the Public Administration Reform has been set up within the Ministry of Public Administration, mainly to monitor implementation of the elements of the strategy and programs for reform of public administration. Also, a *network of expert groups* at the ministry and prefecture level, which will collaborate directly with the Central Unit for Reform, was established.

The Romanian report contains the analysis of relevant indicators on e-Government. The section shows the latest figures from the SIBIS GPS, including cross-tables and compounds indicators. It contains an analysis of indicators like preference for e-Government services, e-Government experience and barriers to e-Government.

2.3 Overview of the Romania Report

This report is organised in six chapters for each of the five topics regarding: telecommunication and access, education, work, social inclusion and e-government. Its aim is to define the gaps in the statistical coverage of the Romania e-society. The deliverable is based on a previous report aimed at setting the scene on the topic, which identifies the existing indicators for the topics that already exist in Romania.

The first three chapters are designed to give the reader an idea of the main outcomes (Executive Summary), the context (Introduction) and the topic research and indicators developed for Romania within the SIBIS framework. The core of the report is the analysis of indicators, regarding telecommunication and access, education, work, social inclusion and e-government provided in chapters 4, 5, 6, 7, 8, and 9, based on a survey (a General Population Survey) conducted on the five topics mentioned above.

This report analyses the outcomes with respect to Romania comparing it to the other NAS but also EU-15 countries, Switzerland and the USA for which the same survey was already carried out in 2002. The document has two main objectives, i.e. 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.

3. General Information about the Country

General information for Romania

Area	237,500.00 square km		
Population	22.3 million		
Rural population (% of total population) 1999	44.06%		
Exchange rate	1 € = 35,677 ROL (the exchange rate for February 2003)		
GDP per capita (PPP) 2001	6,309 US\$		
Economy	2000	2001	2002**
- GDP growth	1.8%	5.3%	3.1%***
- Share of private sector in GDP	65.5%	67.1%	-
- Industrial production	7.1%	8.2%	3.6%
- Gross fixed capital formation, of which:	4.6%	6.6%	4.8%***
- Inflation	45.7%	34.5%	9.3%****
- Unemployment	10.5%	8.6%	9.6%.

*The exchange rate is daily calculated by Romanian National Bank (NBR), but a monthly media can be found on the European Commission site www.europa.eu.int/comm/budget/infoeuro. From 1st March 2003 Euro become the reference currency for the Romanian Leu exchange rate

** Semester I from 2002

*** First quarter 2002/first quarter 2001

**** June 2002/December 2001

Ratings

Historically, Romania has shown regional leadership in information technology: the first computer was designed and manufactured in Romania in 1957, launching the nation's indigenous IT industry, and the country was a significant exporter of hardware and software in Eastern Europe during the 1990s. Nonetheless, Romania ranks only 52 overall in Readiness for the Networked World.

A series of government reforms that should be harbingers of future development of the ICT sector were enacted in 2000. The establishment of a new Ministry of Information and Communication Technology, as well as new parliamentary mechanisms to ease adoption of ICT legislation, signalled a greater commitment by the government to ICTs as a national priority. Progress was made on adopting e-commerce and e-signature legislation. However, the private sector's perceptions of the government's commitment, remain very poor (Ranking in ICT as Government priority: 75).

E-commerce and e-government are basically non-existent in Romania. The low purchasing power of the Romanian population, extremely limited PC ownership, high Internet access costs, and difficult national economic situation are the main obstacles to the development of e-Commerce and e-Government in Romania. Nonetheless, there has been recent rapid growth in the number of Internet hosts and mobile telephony subscribers.

Romanian Networked Readiness is held back by an inability to set the stage for sound regulatory reform (Ranking in Effect of Telecommunications Competition: 60).

Romania's largest challenge may be the underdevelopment of its rural areas. The lack of technology in rural areas (in 1999, only about 5 percent of the rural population had access to telephones) has paralleled significant economic and social discrepancies. To overcome

these deficits, the Romanian government started a US\$500 million, 3-year program in 2001 to create ICT community centres and to supply schools with computers, software, and educational content (Ranking in Internet Access in Schools: 74).

<i>Index</i>	<i>Rank</i>	<i>Source</i>
<i>Information Society Index 2000</i>	35 of 55 countries	IDC
<i>Information and Communication Index 2001</i>	55 of 75 countries	WEF
<i>Technological Achievement Index 2001</i>	35 of 162 countries	UNDP
<i>Global IT IQ ranking 2002</i>	17 of 100 countries	Brainbench
<i>E-readiness ranking 2001</i>	52 of 60 countries; (score: 4.00 out of 10)	Economist Intelligence Unit and Pyramid Research
<i>Network Readiness Index 2001-2002</i>	65 of 75 countries (score: 3.10 out of 10)	Center for International Development, Harvard University

4. ICT Infrastructure and Security

4.1 Telecommunication and Access

Based on policy documents and other relevant sources, the statistical indicators in the area of telecommunication and access were identified for Romania in WP2. These are: Cable TV subscribers, Digital main lines, Mobile subscriptions, Internet applications used in past 3 months, Internet access affordability-high speed connection, Internet access outside the home, Main lines per 100 inhabitants, Households with home access to the Internet, The number of mobile phone subscribers in business and in personal communication etc.

Within the SIBIS framework, in February 2003 a GPS (WP3) was realised in all NAS 10 countries, including Romania. Relevant data is obtained and several charts were developed.

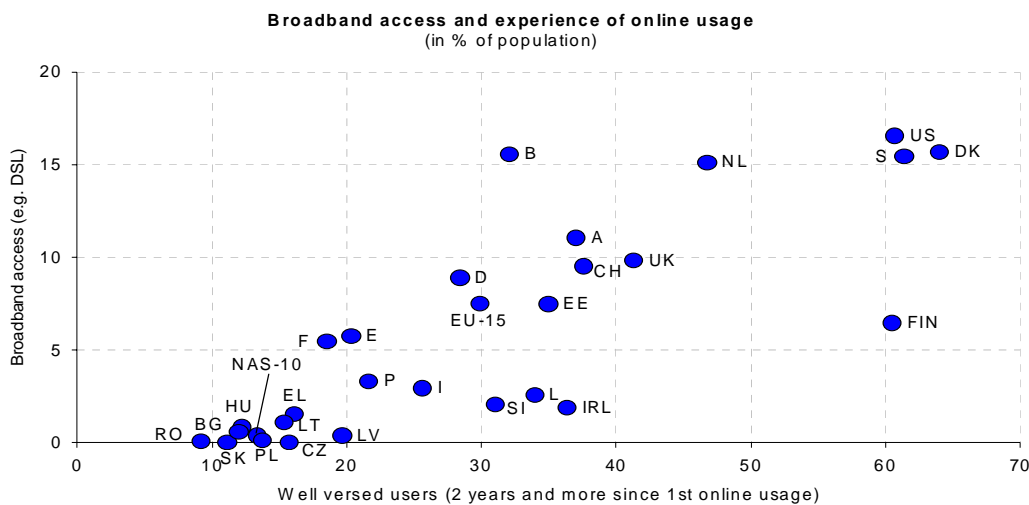


Figure 4.1 - Broadband access and experience on online usage

Base: all respondents, weighted column percentages

Question: A9

Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Figure 4.1 presents data regarding broadband access and experience on online usage. Up to now, broadband communications in Romania are not relatively widespread, due to poor services and high prices. The RomTelecom offer on broadband communication is now oriented on 56Kbps ISDN and 2Mbps PBX Trunk. For the moment xDSL is not available (in most part of the country), but other technologies emerge instead. Mobile phone service providers (Mobifon, Orange, Cosmorum, Zapp), and many others (Alvarion's BreezeACCESS, PCNET), offer wireless broadband access (<http://www.alvarion.com/RunTime/Solutions10020.asp?tNodeParam=2>).

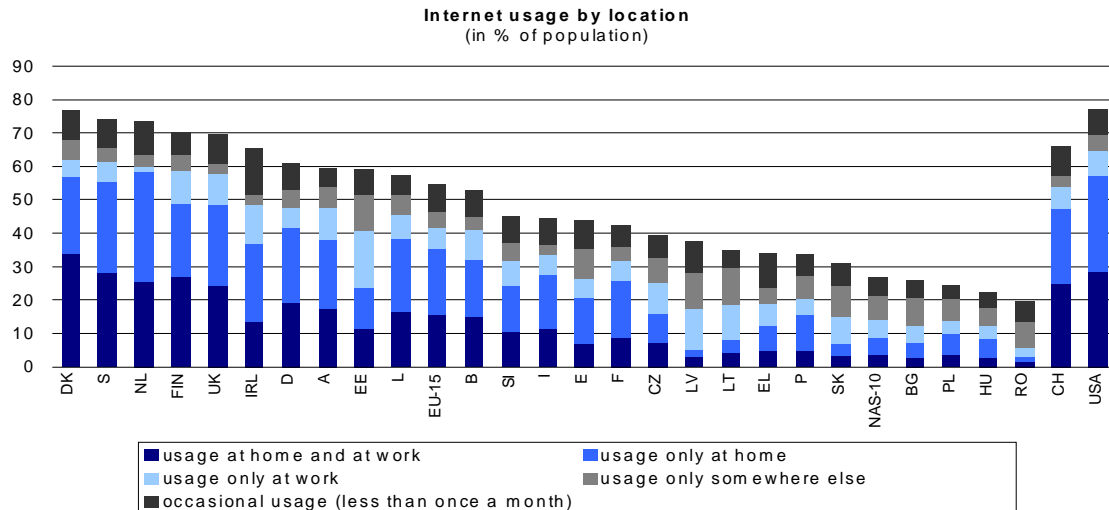


Figure 4.2: Internet usage by location
 Base: all respondents, weighted column percentages
 Question: A9
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Considering Internet usage locations (Figure 4.2), SIBIS data shows that in Romania Internet usage from work is prevailing. The number of Internet usage at work is increasing now, almost any company having its own Internet home page. Due to CATV subscribers, around 55% (<http://www.cablu.ro>) of the Romanian total population, the Internet usage is expected to spread on. In Romania there are now 400 companies acting as ISPs, 50 of them as countrywide companies (<http://www.mcti.ro/mcti0.html?page=1096>). Usage of Internet increases now in education institutions due to distance-learning students to open-distance courses spread in the country. The number of Internet users in Romania is around 700,000 people (<http://www.anis.ro>).

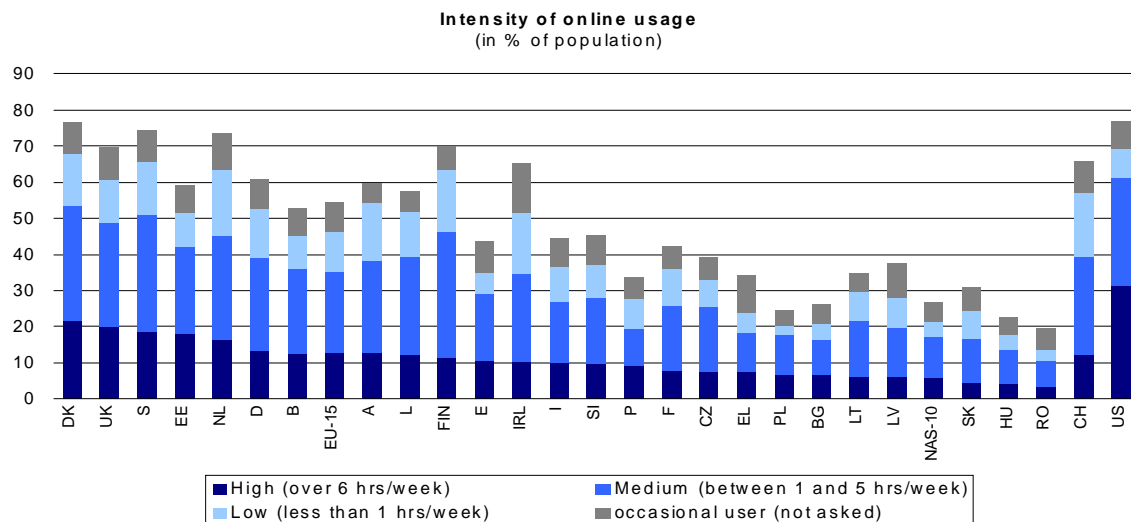


Figure 4.3: Online usage Internet
 Base: all respondents, weighted column percentages
 Question: A10
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Based on Figure 4.3, the Internet on-line usage in Romania is the lowest of the analysed countries, situated on the limit level of 20% of the citizens who used the Internet on the last four weeks. As a matter of fact, almost 8% of the Romanian population uses Internet between 1 and 5 hours/week.

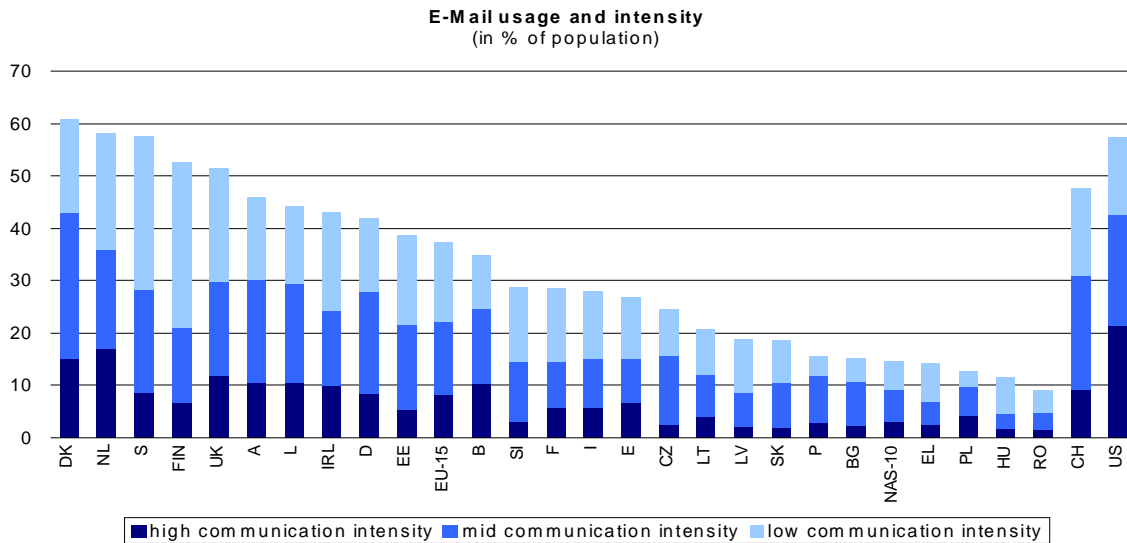


Figure 4.4: E-mail usage
 Base: all respondents, weighted column percentages
 Questions: A3, A4a
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS - NAS

E-mail usage and intensity in Romania is charted in Figure 4.4, showing the lowest communication intensity of the analysed countries (only 9% of the Romanian population). Due to high connection prices and small Internet market offer e-mail usage is not spread on Romania population, although 98% of the urban population have access to telephone from home. The number of the main lines is lower in the countryside; the same setback (a limited number of connecting companies) can be encountered in the national mobile phone industry.

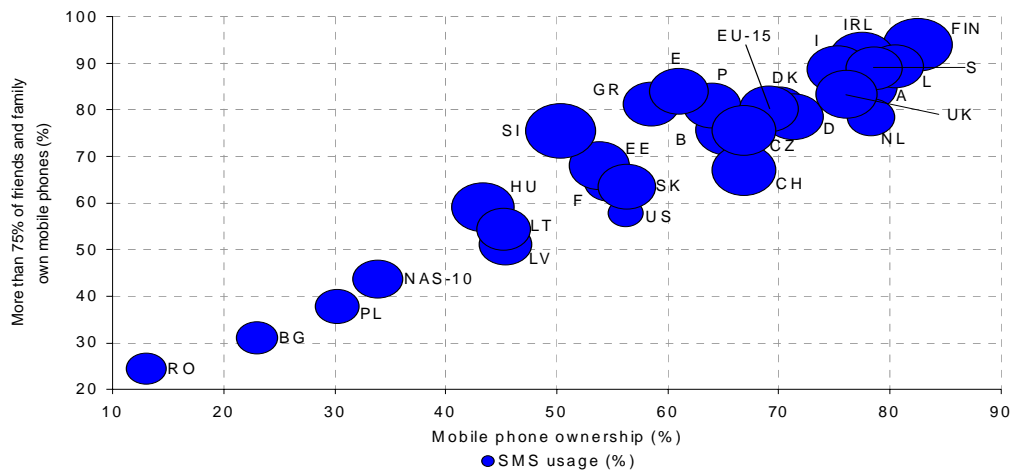


Figure 4.5: Mobile phone usage
 Base: all respondents, weighted column percentages
 Questions: A19c, A20, A27
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Figure 4.5 illustrates the Mobile phone usage across EU and NAS-10 countries. In Romania, the number of persons using mobile phones is around 1.5 million. Three main mobile phone operators are acting on the market: Mobifon, Orange and Cosmorum (<http://www.anisp.ro/?c=despre-ecouriinpresa>).

In Romania, SMS is a much favoured and frequently used service. There are two main reasons for this. Some customers sometimes prefer this service because of the price. The

message can be delivered at lower cost than the price of a call. Another reason is the confidentiality of SMS. An SMS does not disturb so much as a phone call. It can be read whenever the recipient is able to do so. SMS use correlates with age. The highest proportion of SMS users are found in the youngest age group. 92% of mobile owners from the age group up to 24 use SMS but only 30% of the oldest age group.

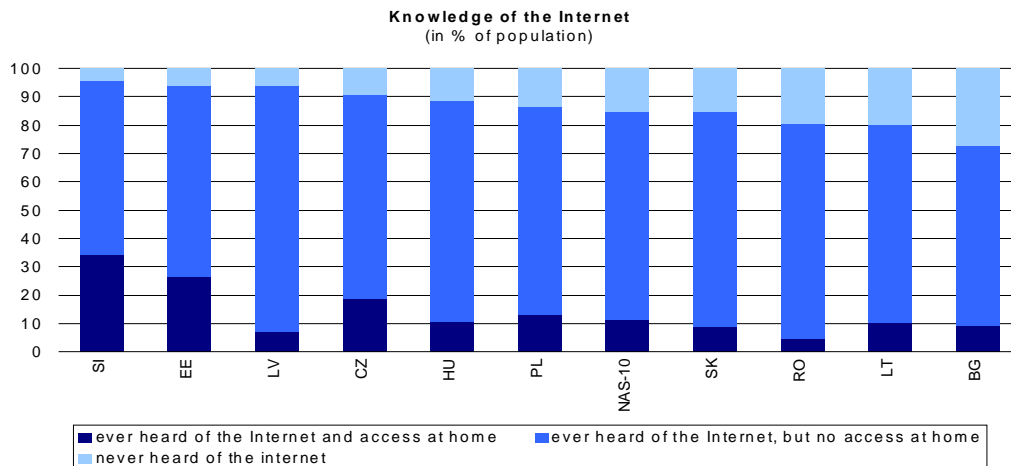


Figure 4.7: Internet Knowledge
 Base: all respondents, weighted column percentages
 Question: A10
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Figure 4.7 presents the Internet knowledge in NAS 10 countries. The reduced number of households and schools with access to Internet gives motivation for such a high percentage of people unfamiliar with the Internet usage in Romania. Less than 5% of the Romanian population ever heard of the Internet or access it from home.

4.2 Security

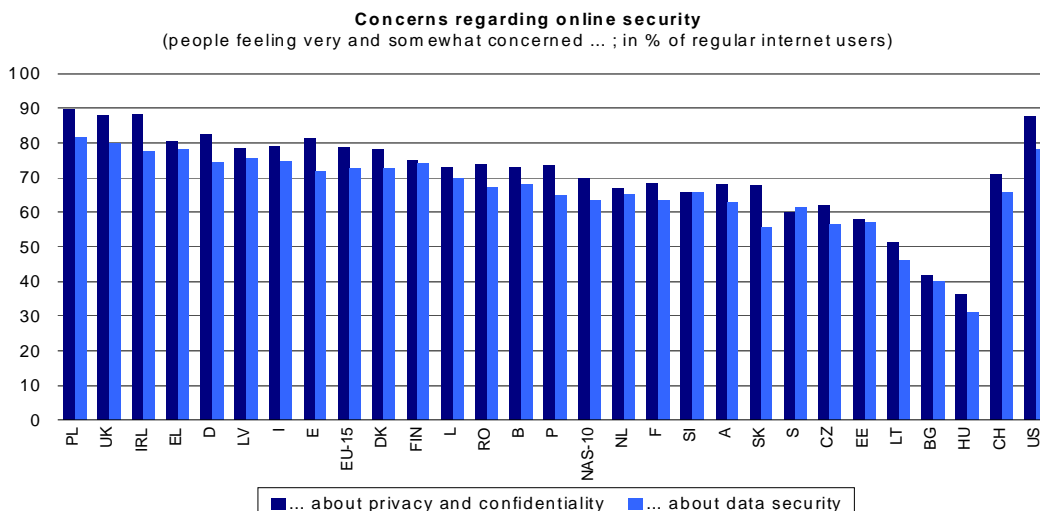


Figure 4.8: Concerns regarding online security
 Base: regular Internet users, weighted column percentages
 Questions: J1a, J1b
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Internet users are strongly concerned both about privacy/confidentiality and data security. Concerns (particularly on privacy) seem to be lower in continental Europe than in the UK,

Ireland or the US. Whether this is caused by a higher amount of negative experiences, more trust in the functioning of society-at-large or the level of awareness is not yet clear. From the Figure 4.8 it can be observed, that both types of security concerns are substantially correlated.

In Romania, people are concerned about privacy and confidentiality, mainly due to the use of non-licensed software or un-secure sources. Furthermore, few computers and networks are unlicensed access-proof by anti-virus or firewall software. Thus, laws concerning data security have been promoted recently (<http://www.mcti.ro/mcti1.html?page=802>).



Figure 4.9: Security concerns and online shopping usage
Base: regular Internet users, weighted column percentages
Questions: B2 B, J2
Sources: SIBIS 2002, GPS, SIBIS 2003, GPS - NAS

The chart from Figure 4.9 shows that shopping online is not as common in the NAS as it is in the EU countries. 16% of regular Internet users in the NAS have been shopping online and 6% of regular Internet users in the NAS have been put off buying online.

40% of regular Internet users have been shopping online and 28% have been put off buying online in EU. We can see that Internet users in NAS are less afraid of Internet shopping than users in EU.

At present, the Romanian market is not mature enough for e-commerce and e-banking, even though e-commerce sites can be accessed on a daily basis (http://www.afaceri.net/articole/Comert_electronic/Situri_de_comert_electronic_in_Romania.html, http://www.afaceri.net/EBUSINESS/E_BUSINESS.html).

5. e-Society and Social Inclusion

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

Previously Romania's WP2 on social inclusion explores the main issues on literature, points that are relevant for a better understanding of the studied area, the related policy-making, and for the directing and influencing research regarding the topic of social inclusion and the Information Society. It also briefly revisits definitions of some of the key terms, with the aim of enhancing the overall comprehensibility, thus offering a more complete understanding of the topic.

This chapter, based on SIBIS and SIBIS+ General Population Surveys, conducted in EU-15, 10 NAS countries, US and Switzerland contains the analysis of all relevant results on social inclusion and some cross-analysis, e.g. combining results on Internet users by socio-economic characteristics such as Internet use by place of access.

Relevant statistical indicators concerning social inclusion, available in Romania are presented in table 5.1.

Table 5.1: Social inclusion statistical indicators available in Romania

No	Social inclusion statistical indicators
DDIX1 (NAS)	Digital Divide Indices for total NAS 10
DDIX2 (NAS)	Digital Divide Indices for total EU and NAS
DDIX5 (NAS)	Education Divide Index
SI15	Barriers to Internet usage: It requires advanced computer skills
SI20	Barriers to Internet usage: Is not something for me
SI15 (new)	Internet usage in the last 4 weeks by existence of a long standing illness
SI10 (new)	Life without Internet: Would users feel socially excluded?
SI12	Internet usage drop-outs

Relevant charts (Figure 5.1-5.6) developed after SIBIS+, General Population Survey are presented below.

Social inclusion is inextricably linked to the issues of (accessing and maintaining) employment, education, housing and healthcare. At the same time, these issues/phenomena provide the basis for most tangible indicators for measuring inclusion. Against this background there has been a predisposition to view divisions in relation to the Information Society as being just an extension of divisions from 'pre-Information Society'. This requires a multi-perspective view that includes attention to differential levels of access [to the ICTs] across various subgroups of population whilst also looking at issues such as 'unpacking' of the very concept of access. In this chapter indicators on barriers to Internet usage are presented, digital divide index (DIDIX), and Internet dropouts.

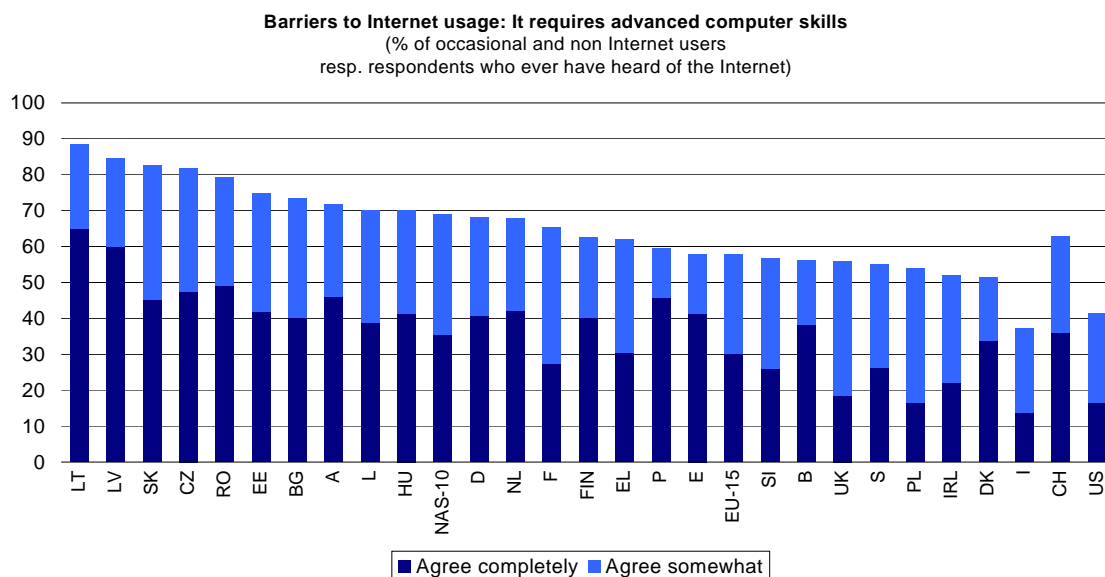


Figure 5.1. Barriers to Internet usage: 'Internet requires advanced computer skills'

Bases: occasional and non-Internet users resp. respondents who ever have heard of the Internet, weighted column percentages

Questions: A5a, A7, A8, A18a

Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

The percentage of population who at least agree somewhat that the Internet requires advanced computer skills is the highest among all measured barriers. In almost all countries the population percentage is above 50%. Romanians are positioned lower compared to NAS and EU average, since below 50% of them agrees completely with the statement that the Internet requires advanced computer skills. Similar goes to the barriers 'Internet is not easy to get access to', 'Internet is too time consuming', 'Internet lacks useful or interesting information', and 'Internet is not something for me'. In all mentioned cases Romania population, who have ever heard of the Internet, in less extent perceive those barriers as EU/NAS average.

Around 50% of the Romanian GPS respondents completely agree that barriers to Internet usage do exist. The opinion of occasional or non-internet users on this matter is that advanced computer skills are undoubtedly required.

60% of Romanian GPS respondents consider that 'Internet is not something for me'. The reason is clearly connected to the population's minimum computer skills non-existence. Health conditions cannot be considered a barrier for Romanian Internet users.

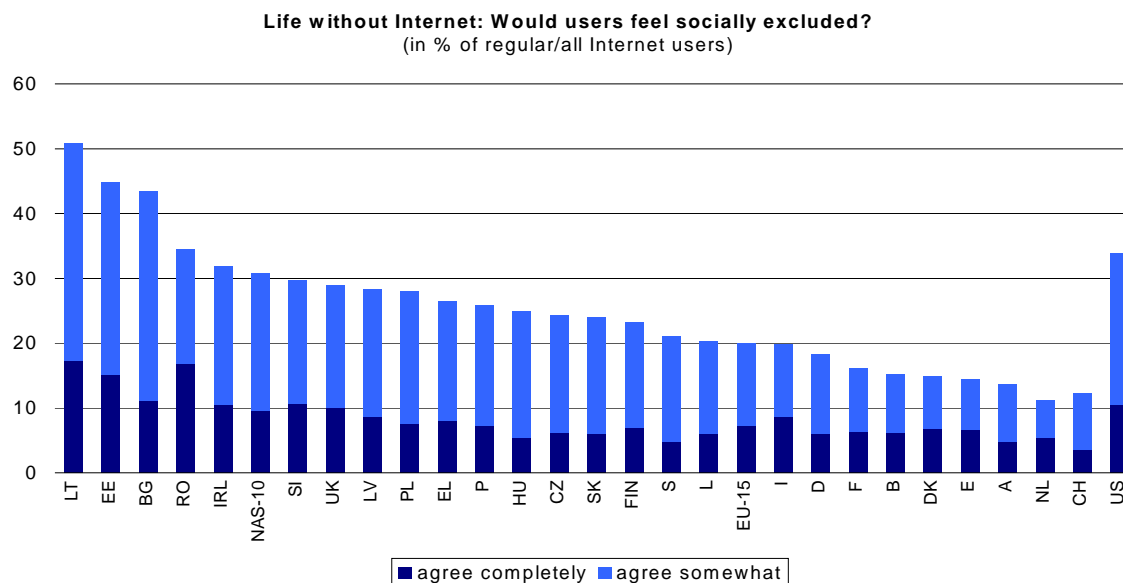


Figure 5.2: Life without Internet: Would users feel socially excluded?

Bases: EU-15 countries: regular Internet users, NAS-10 countries: all Internet users, weighted column percentages

Question: B5b

Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

34% of the Romanian respondents consider that they would feel socially excluded without Internet. The reason for Internet usage drop-outs is the connection type (dial-up) and the prohibitive price.

The following chart (Figure 5.3) shows the influence of long-term illness on Internet use. As we can see the differences are great. In the NAS, 26% of 'respondents who have no health-limiting conditions' use the Internet but only 7% of respondents 'with long-term illness'. In the EU countries, 50% of 'respondents who have no health-limiting conditions' state that they use the Internet against only 29% of respondents 'with long-term illness'.

On the other hand for some disabled who managed to overcome the barriers, the Internet begins to be a crucial item in their life. The Internet enables these people to communicate with the outside world in a way that would otherwise not be possible for them.

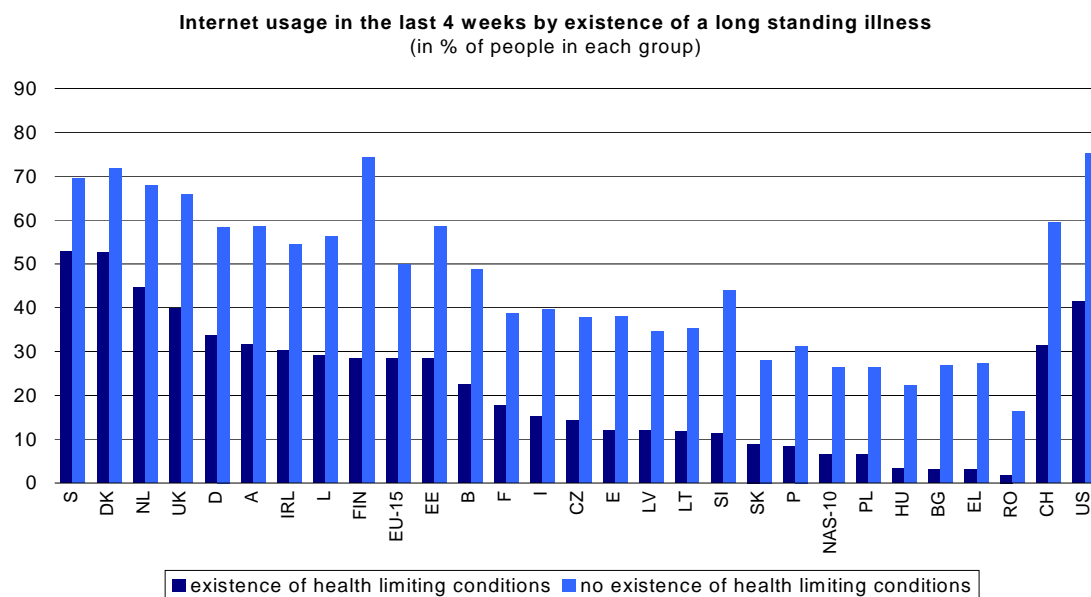


Figure 5.3: Internet usage in the last 4 weeks by existence of a long standing illness

Bases: respondents with health-limiting conditions and without health-limiting conditions, weighted column percentages

Questions: A7, Z14

Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

6. e-Education and Life-long-learning

The 'Education' concept is changing. From the formal and pre-defined curriculum in the industrial society, education is today redefined as lifelong learning in the information society. This transformation process is of a dual nature:

- On one hand, the educational system will have to adapt to a knowledge economy both in terms of organisational settings, infrastructures and partnerships, pedagogy, curricula and teachers' qualifications.
- On the other hand, users of education at all levels and ages will need to develop another mindset, i.e. moving from an instruction-based understanding of education to a paradigm where the individual most likely will be expected to take a much larger co-responsibility for identifying and continuously developing his/her skills basis in a variety of ways and settings. Likewise, companies and institutions are in the process of adapting to a business environment where skills and knowledge play a central role in overall economic performance.

Whether we talk about policy developments related to educational systems or the adaptation process of the individual, companies and organisations to living, learning and working in a knowledge economy – ICT is viewed as a critical enabler.

The Romanian Ministry of Education and Research (MEC) developed a set of criteria to evaluate the stage each university (state or private) reached to perform CBT (Computer Based Training) and WBT (Web Based Training). Beside the higher education authority interest in the field, almost every education institution tries to use computers and their own intranet or the Internet as means in the learning process - for quick, full time available and complete information transfer. However, as in other sectors, the difficulties of transition economy hinder the spread of modern means in education, due to shortage of funds for software instruments and for high-speed links to the Internet. It is much too expensive for education institutions in Romania to buy specialised software - in order to prepare and to manage courses content, or for communication inside the group of students or with the teachers, thus, the learning process remains to material based training and e-mail communication. Most applications used in the learning process do not provide interactivity, but only present information to students and hardly offer means for knowledge test.

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

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

The nation-wide network of Agencies for Occupations and Labour Force (AJOFM) organise in every county qualification ICT courses for unemployed persons, many of which are based on funds coming from the Ministry of Labour and Social Cohesion (MMPS).

Within the SIBIS framework (WP2) were identified and analysed all relevant indicators on Education and Skills for Romania. The study contains an analysis of indicators such as computers in schools and universities (data from national/other sources), company-provided training, training provided by other organisations, self-directed learning, modes of training (use of eLearning).

Relevant statistical indicators concerning e-Education, available in Romania are presented in table 6.1.

Table 6.1: e-Education statistical indicators available in Romania

No	e-Education statistical indicators
EDU1	Skills at communicating via the Internet
EDU6	Confidence in obtaining and installing digital tools
EDU7	Skills at identifying the source of information on the Internet
EDU8	Skills at searching information through Internet search engines
EDU2	Skills at communicating via E-Mail
EDU5	Skills at creating a personal internet page
EDU3	Skills at using Internet chat rooms

Relevant charts (Figure 6.1-6.6) developed after SIBIS+, General Population Survey are presented below.



Figure 6.1: Participation in lifelong learning
Bases: labour force, weighted column percentages
Questions: C2
Sources: SIBIS 2002, GPS, SIBIS 2003, GPS - NAS

The first chart (Participation in lifelong learning – Figure 6.1) compares the percentage of the labour force in different countries, which in the preceding four weeks had taken part in a lifelong learning course.

Within the given time period less than 5% of the Romanian labour force had used organised forms of education. There is a significant difference between Romania and Finland. We can expect that universities and other organised forms of lifelong learning will be more and more supplemented, reacting flexibly to citizens. This corresponds to the imperatives of the knowledge-based society.

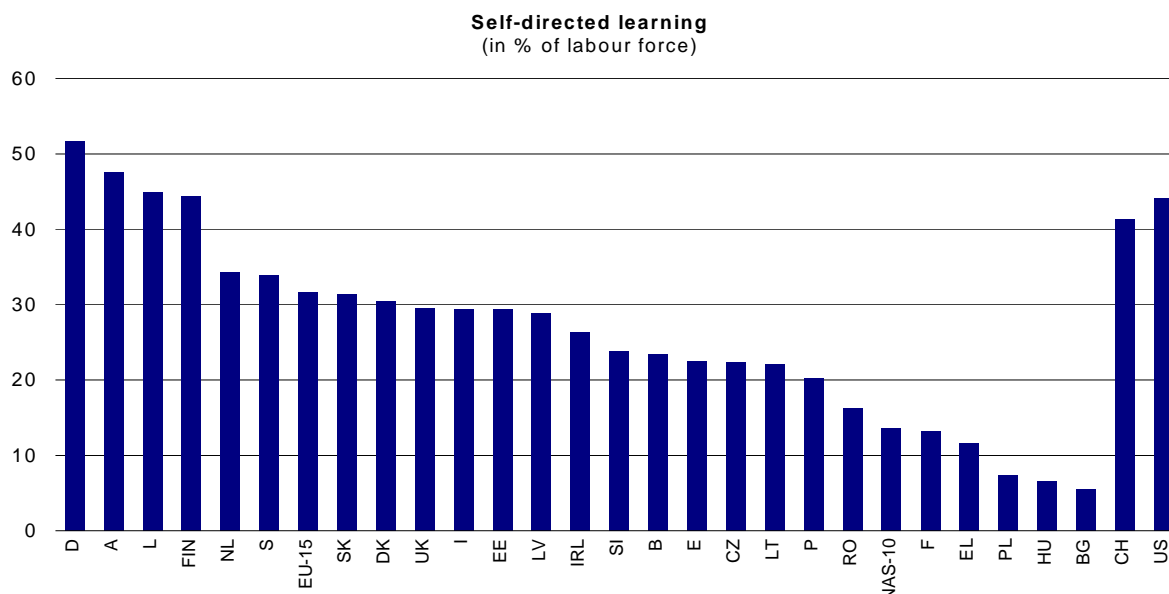


Figure 6.2: Self-directed learning

Base: labour force, weighted column percentages

Question: C14a

Sources: SIBIS 2002, GPS, SIBIS 2003, GPS -NAS

Figure 6.2, corresponding to self-directed learning, traces amongst the same group, the number of respondents who have educated themselves.

Almost 18% of Romanian respondents took part in organised lifelong learning or self-education, which is not a small figure. This percentage of respondents, involved in education does not use the traditional position of in-school education. It is possible to expect growth of lifelong learning activities in the coming years, due to the Internet facilities.



Figure 6.2: Participation in any learning in last 4 weeks

Base: labour force, weighted column percentages

Questions: C2, C14a

Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

The third figure, 6.3 synthesises both forms - participation in lifelong learning courses and self-education. E-learning, using on-line connections was used by 18% of the Romanian labour force. In fact, the data is connected with those who are economically active, students,

who are most advanced in PC and Internet use and whose educational needs and activities are above standard. Only 4% of the Romanian population takes part in lifelong learning activities. There is a better representation in self-directed learning and any other learning in the last 4 weeks, with 18% from the total population.

The higher the level of acquiring new information technologies, the higher is the difference between the actual rate of those who are economically active and are using e-learning and the potentiality of e-learning. A certain e-learning educational culture is underdevelopment now.

Nowadays, Internet was incorporated into Romanian educational tools, with the phase delay caused by the level of Internet development. Presently, PCs and the Internet are massively used as supporting tools for the educational process in universities. Almost 18% of the Romanian respondents have skills in communicating via Internet, which is lower than NAS 10 (20%) or EU-15 (50%). Low confidence in obtaining or installing digital tools is another gap to the future fulfilment.

Only 15% of the Romanian respondents have the necessary skills to identify or to search sources of information on the Internet search engines. A greater percent, 18%, reflects the e-mail communication, but comparing with EU-15 countries is not representative. Chat rooms' communication is increasing, 8% of the Romanian respondents having confidence in using them.

7. e-Economy and e-Commerce

The accelerated use of information and communication technologies and the advent of the Internet have put very powerful tools within the reach of citizens, governments as well as large and small business everywhere. This is resulting in deep changes in the internal organisations of governments and business as well as in the relationships amongst business, trading partners, citizens and governments. We now know that these technologies are considered to have a considerable impact on the whole of the economy and those policies, which govern their use, and implementation is decisive in the modernisation of these economies.

The eEurope 2005 Action Plan is to create a dynamic business environment and to stimulate the establishment of an infrastructure for e-commerce as well as the use and mutual recognition of electronic signature. E-commerce is basically non-existent in Romania. Based on this indicator, the Romanian regular users represent 0.6% of population and the occasional users 0.78%.

Furthermore, this situation is explained by the low purchasing power of the Romanian population, high Internet access prices (average monthly cost for 20 hours of Internet access is US\$ 16,62, www.cid.harvard.edu/cr/profiles.html) and the difficult national economic situation. Internet users per 100 inhabitants represent 3.58% (www.worldpaper.com/2002), which justify the citizens' access to and use of the Internet.

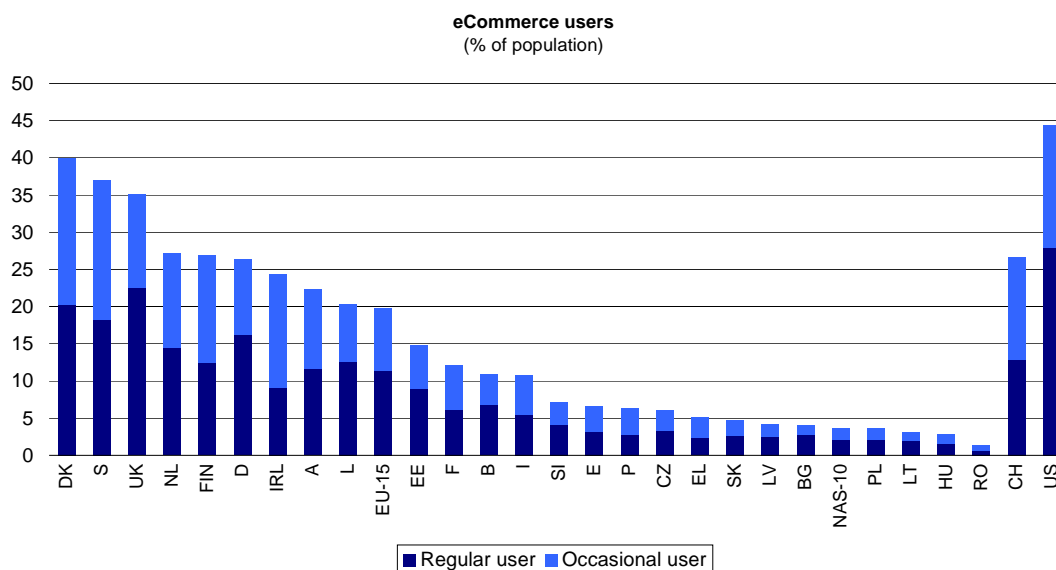


Figure 7.1: E-commerce users

Base: all respondents, weighted column percentages

Question: B1

Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

According to Figure 7.1, e-commerce is a totally new domain for Romania, and this fact justifies the results regarding the % of population who used Internet in buying goods, less than 1% being regular users. According to the above chart, Romanian respondents are occasionally users of e-commerce.

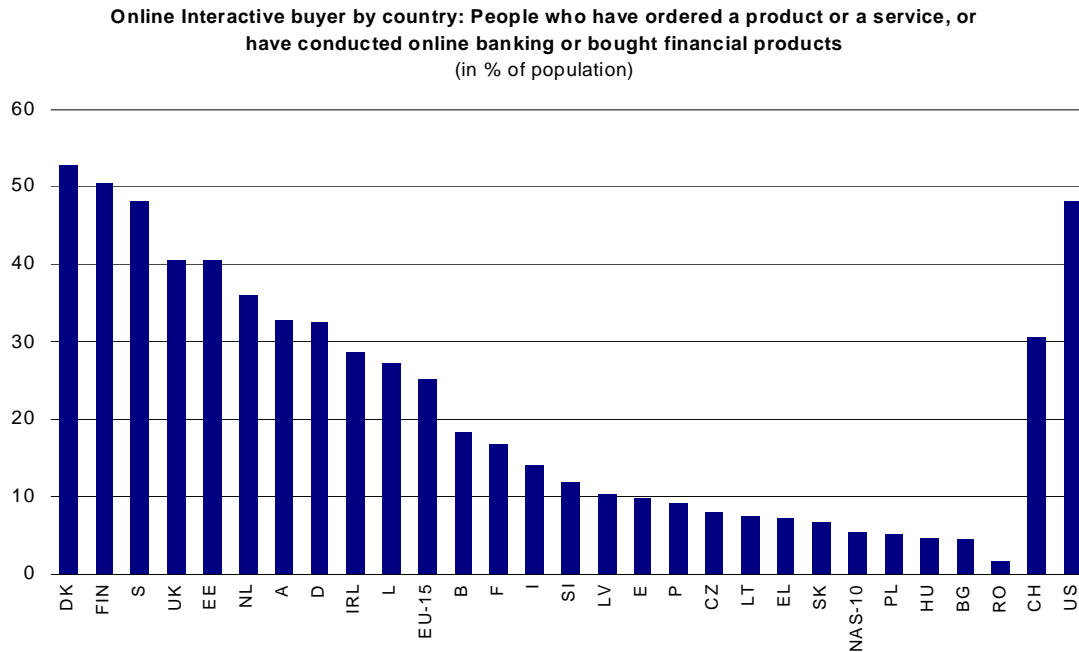


Figure 7.2: Online interactive buyer by country
 Base: all respondents, weighted column percentages
 Question: B1
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Figure 7.2 shows that 1,79% of the Romanian population uses the Internet to conduct online banking or to buy financial products, and 80% are non-users.

The low level of regular or occasional e-commerce users among the Romanian population (around 2%) is due to the small number of e-commerce transaction services available. A core factor for figures regarding e-commerce users is the perception of the level of security and the trustworthiness of the current e-commerce services. The conclusion is that the lack of trust in the virtual market is probably a relevant barrier to the use of e-commerce at this stage in its development in Romania.

8. e-Work

8.1 Work Organisation – Structure and Outcomes of Employment

Romanian WP2 developed on this section explores, by consulting the relevant research literature on work, skills and employment, how information society developments affect supply and demand of human skills, how these interact with forms of work organisation and employment patterns, and in which ways ICTs act as enablers and shapers of change. The main stakeholders in each of the important areas of the topic are outlined, together with existing indicators.

Skills are the necessary basis (precondition) for the deployment of individuals in the production process (application: *work organisation*), which in turn creates the foundation for *employment* and the value derived from it (outcomes such as productivity, remuneration, work satisfaction). In this sense, employment is the outcome of the labour market procedures that translate skills into work. Whereas skills and the deployment of workers in the production process are not ends in themselves, employment is the socially accepted system through which the capabilities, preferences and needs of individuals are brought to a match. Ultimately, the impact of ICTs on skills and the organisation of work have to be measured according to their contribution to the goal of socially and individually satisfactory forms of employment.

Romania WP2 and the GPS chapters are containing the analysis of relevant results on social inclusion and some cross-analysis, e.g. combining results on Internet users by socio-economic characteristics.

Relevant statistical indicators concerning e-Work, available in Romania are presented in table 8.1.

Table 8.1: e-Work statistical indicators available in Romania

No	e-Work statistical indicators
WES1	Participation in lifelong learning
WES2	Self-directed learning
WES3	Participation in any learning last 4 weeks
WES4	Usage of e-learning
WES16a	Work situation: can adapt starting & finishing times to personal preferences
WES18	Home-based teleworking
WES19d	Interest in telework - incl. current teleworkers
WES20	Feasibility of teleworking
WES24	Mobile teleworking
WES27	Tele-cooperation
WES28	Self-employed teleworkers in SOHOs

Relevant charts (Figure 8.1-8.11) developed after SIBIS+, General Population Survey are presented below.

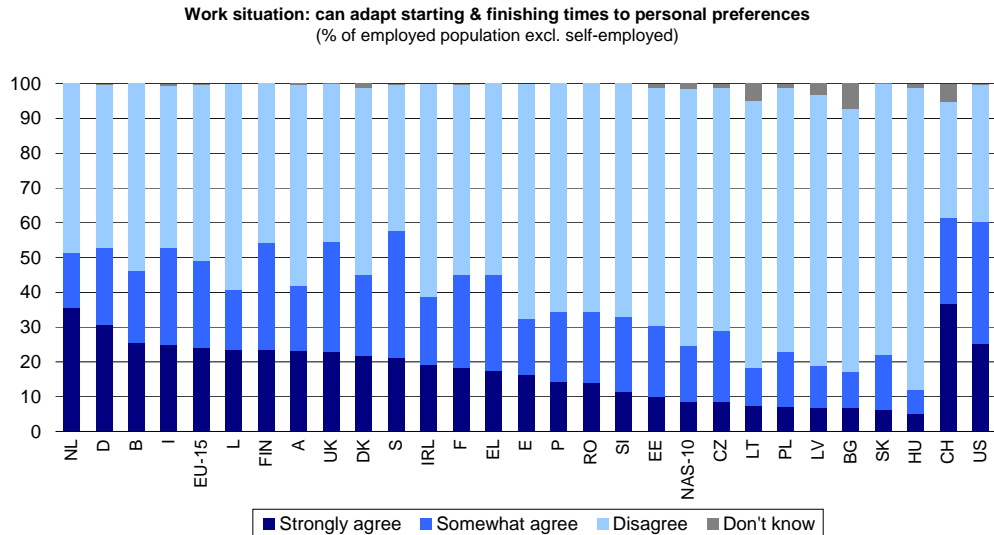


Figure 8.1: Work situation: can adapt starting & finishing times to personal preferences
 Bases: all respondents, weighted column percentages
 Questions: E1, E4
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

According to Figure 8.1, 65% of the Romanian employed population disagree with the statement they can adapt work starting or finishing times to their personal needs. This indicator does not include the self-employed population.

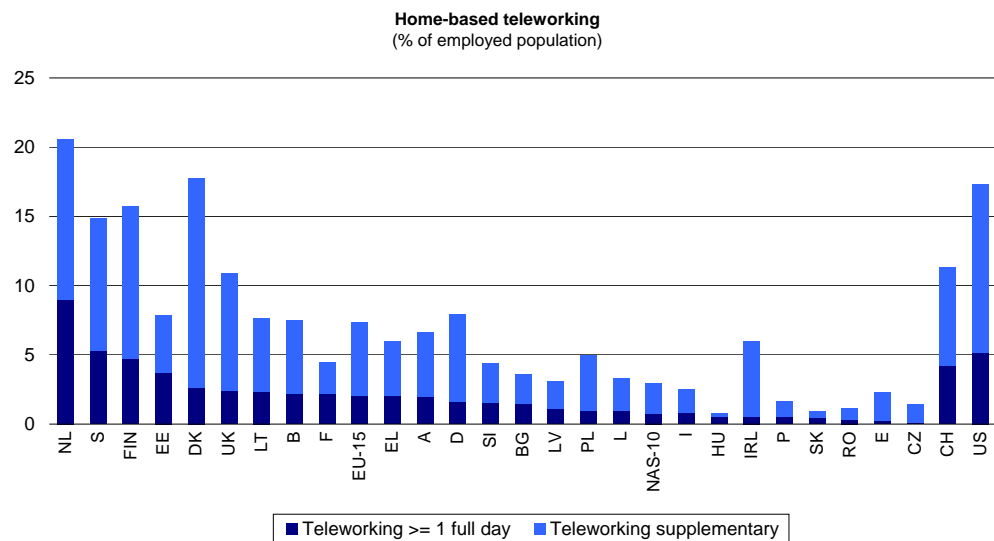


Figure 8.2: Home-based teleworking
 Base: all persons employed, weighted column percentages
 Questions: E1, E4
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Figure 8.2, illustrates that home-based teleworking is just a supplementary work for Romania's employees. The indicator is representative for 1.5% of the active people.

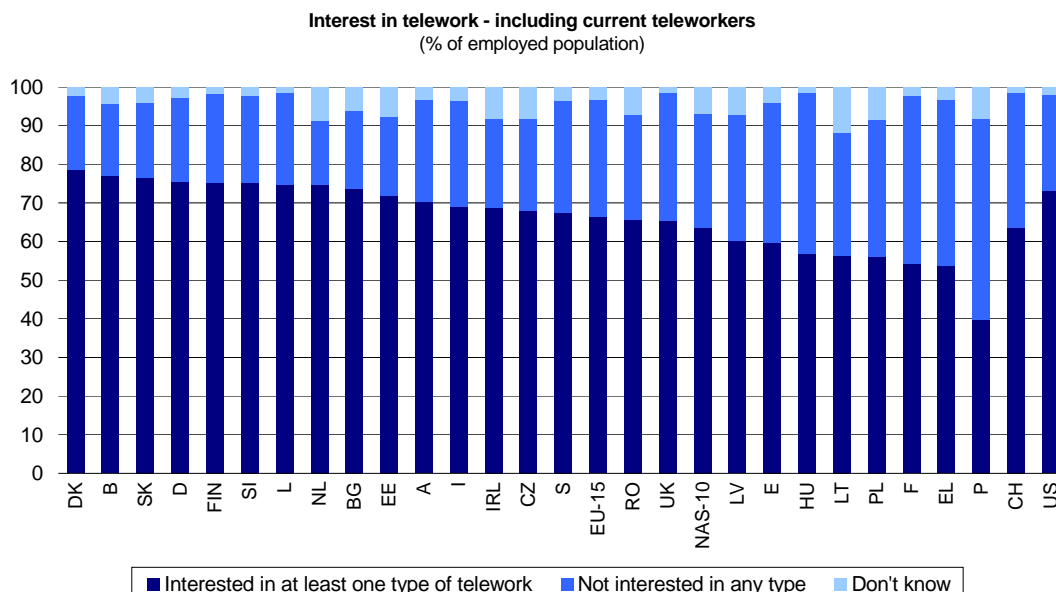


Figure 8.3: Interest in telework – including current teleworkers
 Base: all persons employed, weighted column percentages
 Question: E8
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Figure 8.3 illustrates that 65% of Romanians are interested in at least one type of teleworking, but the feasibility is just around 15%. 9% of the employed population has the possibility of tele-cooperation. Interest in telework is also dependent on professional status.

9. e-Government

Taking into consideration the priority objectives stated in the 2001, as well as the weaknesses identified in the European Commission's regular reports on Romania's progress towards accession, the Government established a priority in designing and adopting a strategy for public administration reform.

By adopting, in October 2001, the Government's Strategy concerning the acceleration of public administration reform, the necessary prerequisites for starting a wide and coherent reform process, both at central and local level, were created. When elaborating the strategy, the need to build a whole-of-government modernising process has been forwarded, and the following main aspects of such a process were covered:

- the type of objectives to be attained by the public sector and the way of achieving them, in order to identify the role and functions of the public administration within the overall political, economic and social system;
- the existing organisational framework and architecture of the public sector and the necessity of adapting it to meet European norms;
- the social impact and effects of the public administration, and the enhanced levels of public participation and decentralisation normally required in this sector.

The Romanian medium term priority objectives of the public administration reform process are:

- Creating an integrated informational system for the central and local public administration, to increase the efficiency of the public administration, to reduce the bureaucracy and to enhance the public services' quality, by means of introducing IT to registration and archive services; increasing the safety of the communication between the decision-makers; improving the activity of petition registration and the process of petition solving.
- Improving the relations between administration and public services users, taking into consideration: simplifying the administrative procedures, eliminating parallelisms in the activity of various public institutions, setting standards for public services, introducing the "one stop shop" system, the permanent delivery of services (non-stop telephone lines, Internet, etc.), strengthening the framework for civil society's participation in the decision-making process.
- Strengthening the institutional capacity for rural and urbane upgrading in the field of development of community public services and promoting access to infrastructure services.

Within the SIBIS framework several statistical indicators in the e-government area were identified (WP2). The latest figures developed from the SIBIS GPS, WP3, show the Romanians capacity and willingness in using IT when dealing with public authorities. Relevant charts for Romania are presented below.

1. Availability of electronic government services by citizens

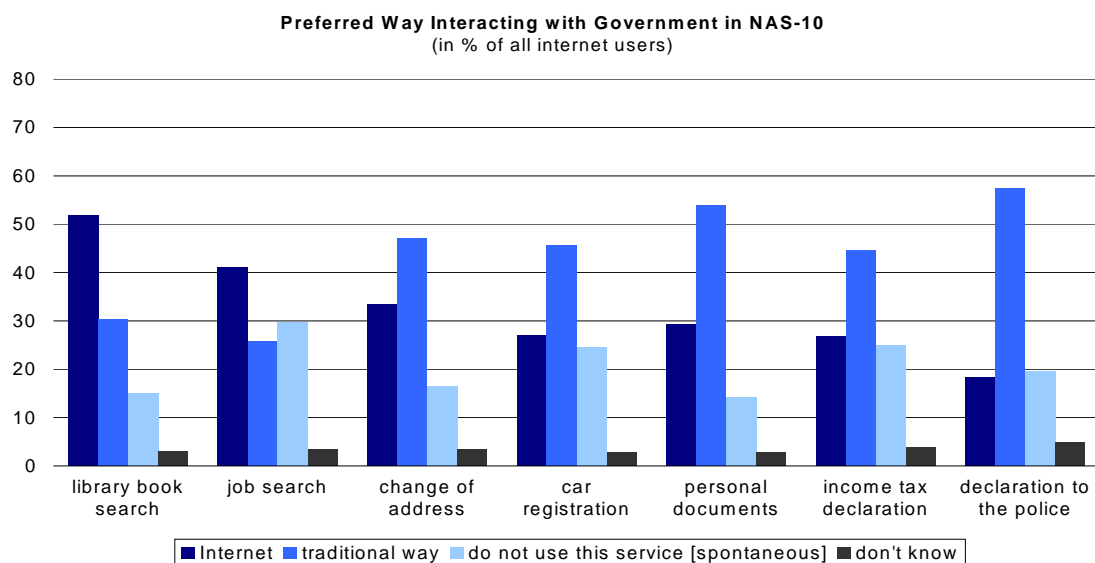


Figure 9.1: Online availability of specific e-government services.

Base: all Internet users, weighted column percentages

Questions: K1A-G

Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Based on the GPS data, Figure 9.1 presents the preferred way to interact with government in NAS-10. The traditional way is still used on a large scale for changing the address, car registration, personal documents and declarations to the police and the Internet become popular for library book search and job search. Future Romanian e-government objectives are connected with the introducing IT for car registration and income tax declaration.

2. Preferences of Citizens

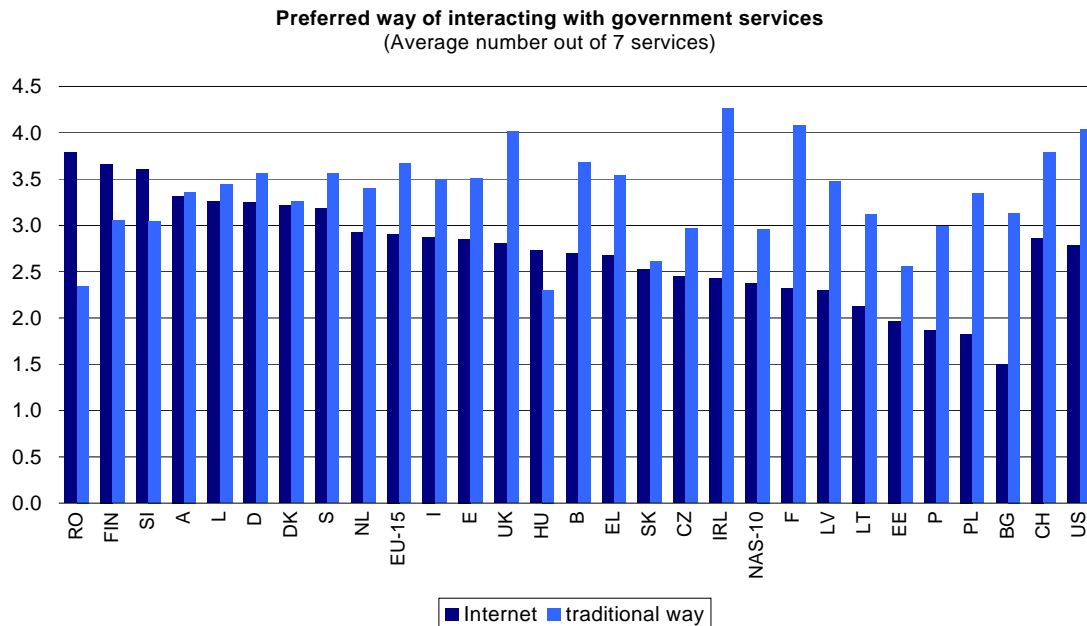


Figure 9.2: Online of traditional preference for government services among survey respondents in the EU and NAS-10
 Base: regular Internet users, weighted average numbers of services
 Questions: K1A-G
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Comparing with other EU member states or NAS-10, Romanians' preferred way of interacting with government services is through the Internet (see Fig. 9.2), considered an easy method to reduce the bureaucracy, improving the activity of petition registration and the process of petition solving. The traditional government services are still used on a large scale.

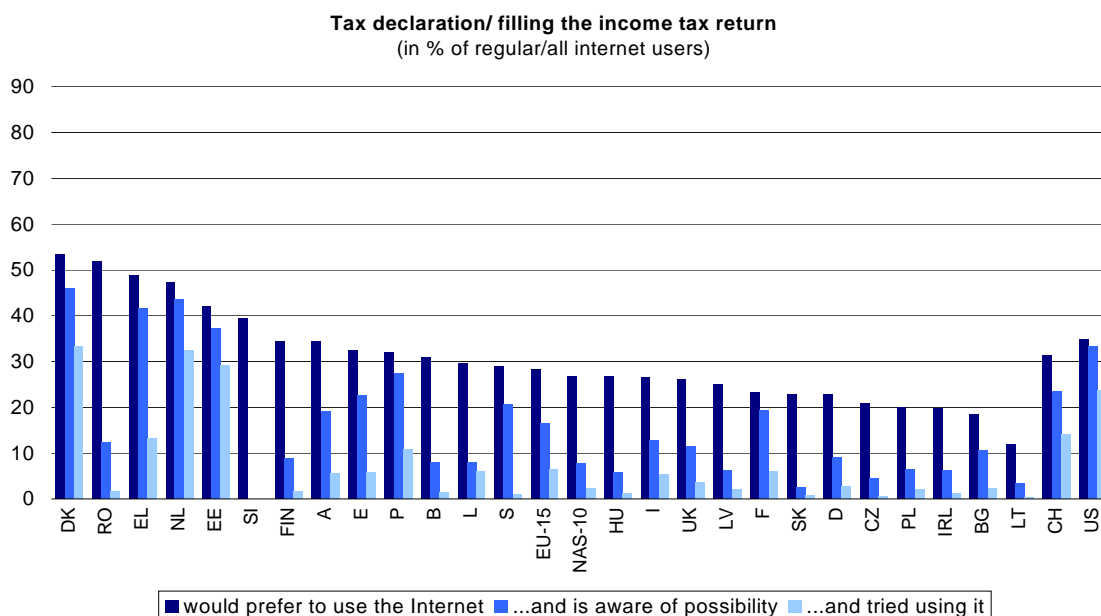


Figure 9.3: Online preference for Tax declaration/filling the income tax return among survey respondents in the EU and NAS-10
 Bases: EU-15 countries: regular Internet users, NAS-10 countries: all Internet users, weighted column percentages
 Question: K1A
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Figure 9.3 is connected with the indicator “Tax declaration/filing the income tax return”, developed from SIBIS WP2 and presents the GPS results in EU and NAS-10 countries. The preference for using Internet in NAS-10 for tax declaration surpasses other possibilities, but the gap still exists, comparing with Denmark, Greece or US. As it can be seen, is one Romania of the Internet leaders. An explanation can be done: the Internet is the easiest way to communicate and the bureaucracy is completely eliminated.

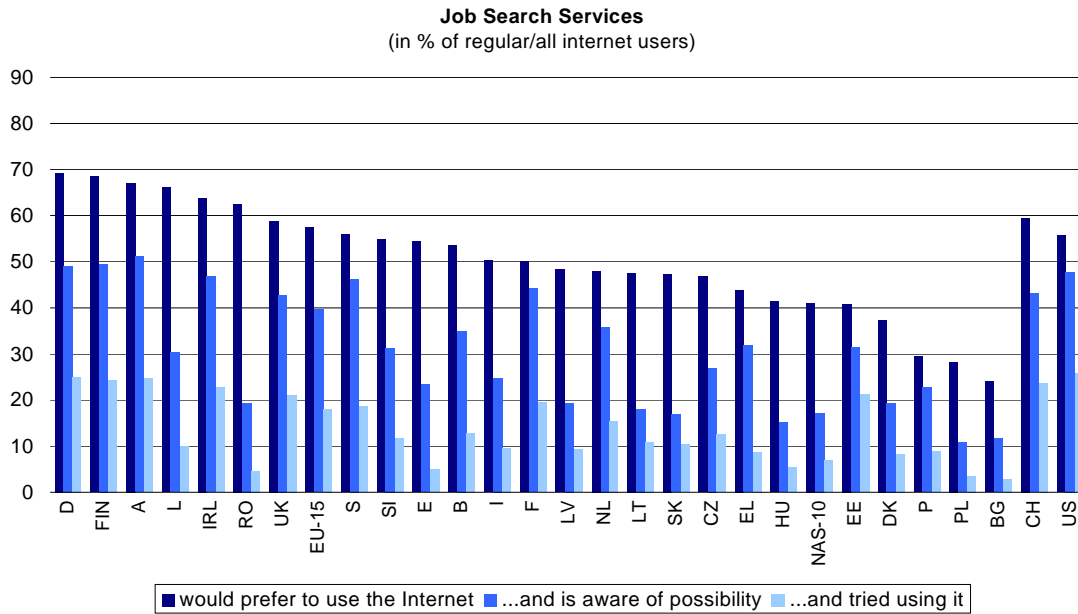


Figure 9.4: Online preference for Job Search Services among survey respondents in the EU and NAS-10
 Bases: EU-15 countries: regular Internet users, NAS-10 countries: all Internet users, weighted column percentages
 Question: K1A
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

“Job Search Services” represents another statistical indicator of SIBIS WP2. Figure 9.4 was developed under the GPS results. The Romanian Internet users prefers to find new jobs via Internet, due to the large scale of job opportunities offered by the National Employment Agency and other national or international companies throughout specialised platforms. Based on this indicator we can conclude that there is no difference between EU job seekers and Romanians in using Internet.

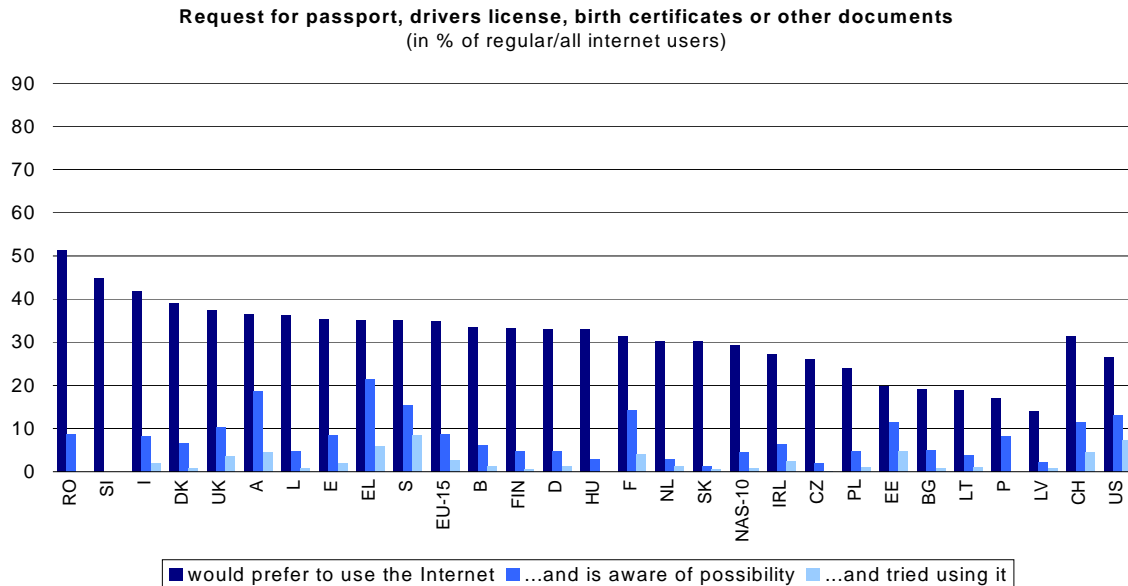


Figure 9.5: Online preference for Request for passport, driver’s license, birth certificates or other documents among survey respondents in the EU and NAS-10
 Bases: EU-15 countries: regular Internet users, NAS-10 countries: all Internet users, weighted column percentages
 Question: K1G
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Figure 9.5 illustrates the SIBIS indicator “Request for passport, drivers license, birth certificates or other documents”. Romania is the leader due to the necessity of changing documents (passports, driving licences etc.) according to the European Community laws. The community “acquis” in this field was adopted. The Internet can be the open way to easy request and obtain secure documents.

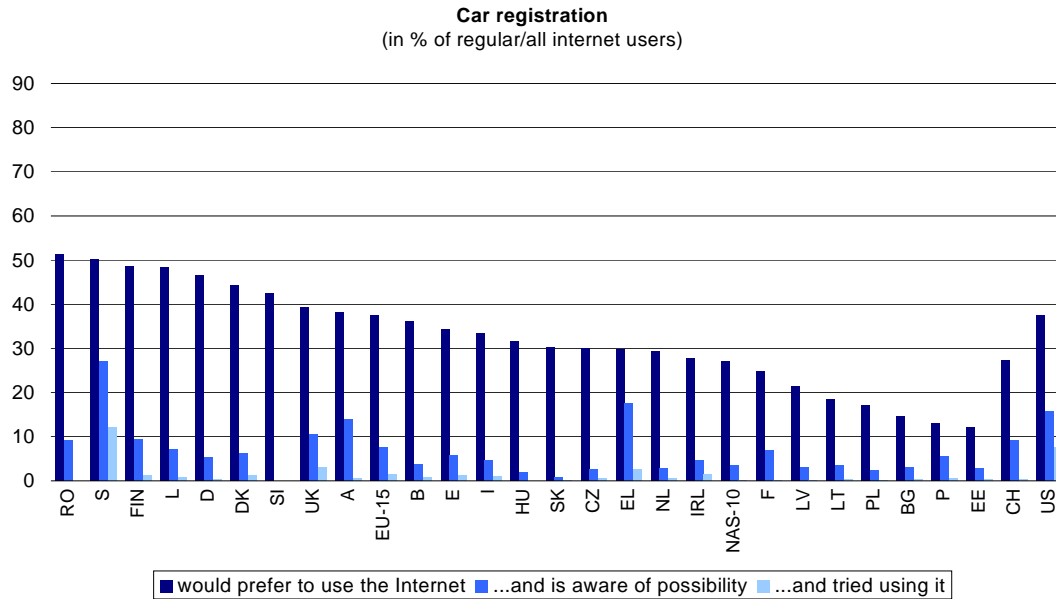


Figure 9.6: Online preference for Car registration among survey respondents in the EU and NAS-10
 Bases: EU-15 countries: regular Internet users, NAS-10 countries: all Internet users, weighted column percentages
 Question: K1E
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

“Car registration” represents a statistical indicator analysed within the SIBIS framework for EU and NAS 10 countries. Romania leads again, due to the great number of new cars acquisition. The preference for using Internet is large, but due to the fact that it is still impossible to register a car through Internet, nobody tried it. From this point of view, there is no difference from RO and other EU countries.

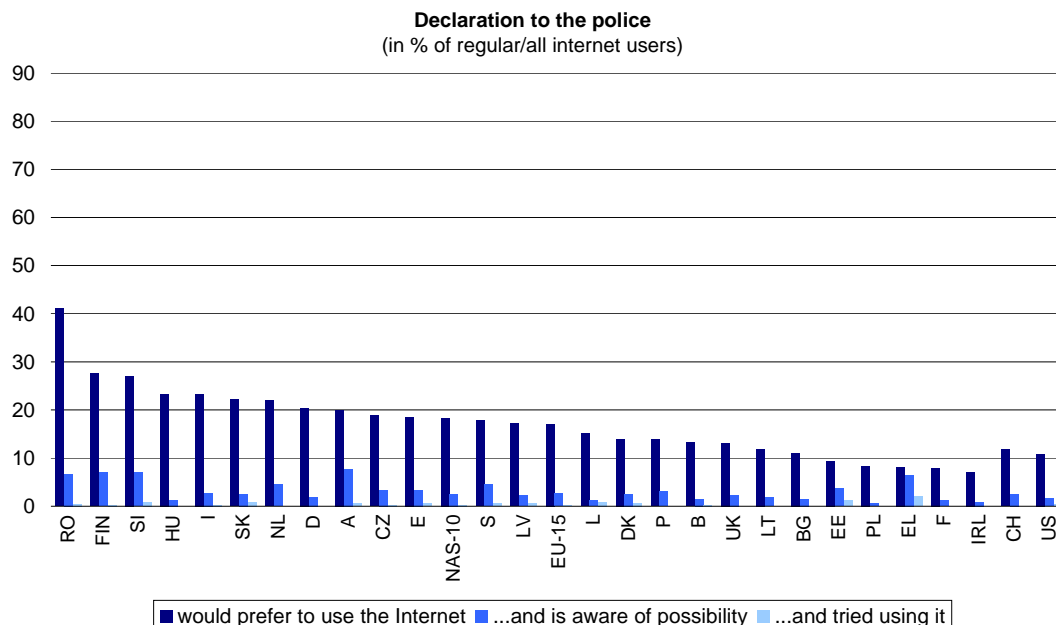


Figure 9.7: Online preference for Declaration to the police among survey respondents in the EU and NAS-10
 Bases: EU-15 countries: regular Internet users, NAS-10 countries: all Internet users, weighted column percentages
 Question: K1E
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

“Declaration to the police” statistical indicator was also the survey subject developed within the SIBIS project. Internet users from Romania are aware of this possibility but the preference for doing that is 3.5 bigger. In fact, in Romania the Police becomes a public

service from October 2002 (the Police was demilitarised), and civilians are considering the Internet platforms more friendly than a Police “face to face” declarations. The reform in this field is ongoing. This can explain the gap between RO and other EU or NAS 10 countries.

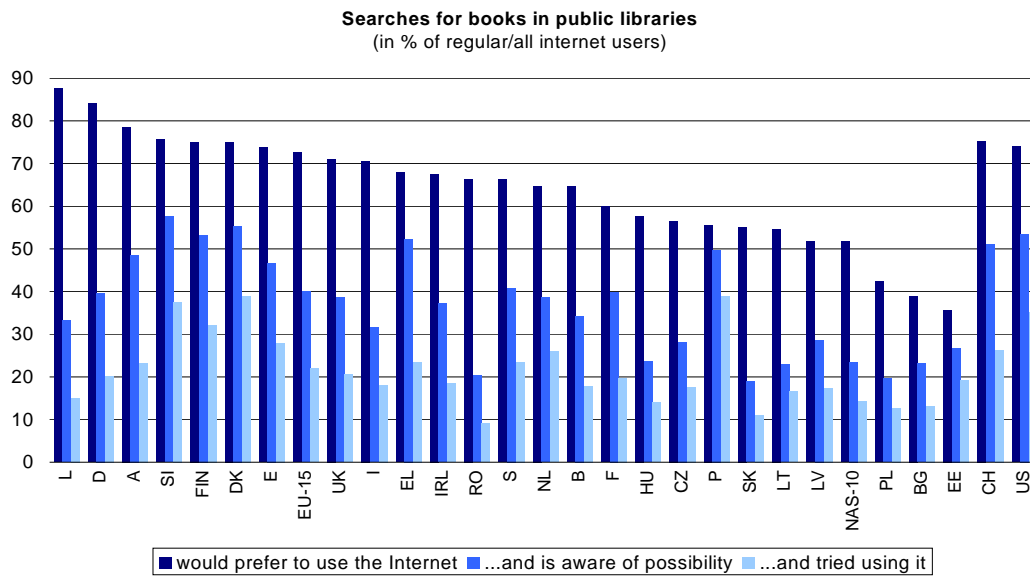


Figure 9.8: Online preference for Searches for books in public libraries among survey respondents in the EU and NAS-10
 Bases: EU-15 countries: regular Internet users, NAS-10 countries: all Internet users, weighted column percentages
 Question: K1
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

Figure 9.8 is the “Searches for books in public libraries” statistical indicator chart developed under SIBIS GPS (WP). The Romanian data’s are comparable with EU 15, surpassing the NAS 10 media. An explanation can be added: the government policy in this area, as well as special measures for life long learning were adopted. The reform in this field is ongoing. Otherwise, a lot of public libraries from schools and universities can be accessed nowadays via Internet, even though an important gap between people who tried to use public libraries and who would prefer to use Internet still exist.

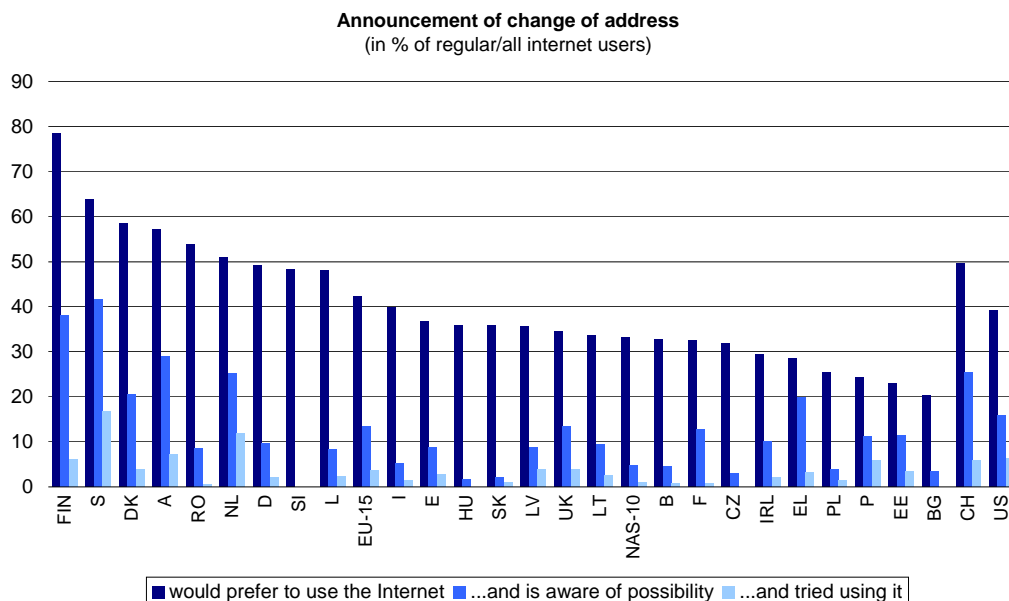


Figure 9.9: Online preference for Announcement of change of address among survey respondents in the EU and NAS-10
 Bases: EU-15 countries: regular Internet users, NAS-10 countries: all Internet users, weighted column percentages
 Question: K1G
 Sources: SIBIS 2002, GPS, SIBIS 2003, GPS-NAS

“Announcement of change of address” SIBIS statistical indicator was also the survey subject. Although the Romanians still do not have the possibility to change the address using Internet they would prefer it. The bureaucracy can be eliminated; lot of time can be saved this way. From this point of view dates from RO are comparable with the EU 15 media, surpassing all NAS 10 countries.

9.1 Analysis of Preferences, Availability and Usage for each Governmental Service

A few explications for the great contrast between the Romanians rate of preference which is the greatest from all EU country, availability and usage with lower compared with EU-15 of electronic government services can be provided for each statistical indicator analysed within the SIBIS framework:

- Searches for books in public libraries: this service shows the higher preference for on line use, is available and also used; in Romania the public libraries are one of the first institutions which provided her specific services on line;
- Job search services by labour offices: this service shows a higher preference for on line use, is available and also used, but the number of user are no great, though e-Job is finished until 2001 and is one of the first e-projects implemented in Romania (<http://www.mcti.ro/mcti1.html?page=807>);
- Announcement of moving (change of address): this service shows a higher preference for on line use, is available (as far as the respondents know) but is not used because it is not available in all country; this project is on the list of finished projects since 2001 (<http://www.mcti.ro/mcti1.html?page=807>);
- Car registration: this service shows a higher preference for on line use, is available (as far as the respondents know) but is not used because this project is under development beginning with 2002 and the respondents made some confusions about the project stadium; it is expected for this service to have a good usage rate, because car registration is a complex process in Romania (<http://www.mcti.ro/mcti0.html?page=1211>);
- Request for passport, driver's license, birth certificates or other personal documents: this service shows a high preference for on line use, is available (as far as the respondents know) but is not used because is not still available in all country; this project is on list of finished projects since 2001;
- Tax declaration/filing your income tax return: this service shows a higher preference for on-line use, has a good availability and also used, but the number of user are no great though this is one of the first finished projects in 2001 (<http://mfinante.ro/cartea%20alba%2022001/Cap.IX>); also Law regarding the electronic signature have been already approved by the Parliament (<http://www.wsis-romania.ro>) in order to speed up this kind of e-services;
- Declaration to the police: this service shows a lower preference for on line use, is available (as far as the respondents know) but is not used because this project is not really available and the respondents made some confusions about the project stadium.

10. Conclusions

10.1 ICT Infrastructure and Security

Based on policy documents and other relevant sources, the statistical indicators in the area of telecommunication and access were identified for Romania in WP2. These are: Cable TV subscribers, Digital main lines, Mobile subscriptions, Internet applications used in the past 3 months, Internet access affordability-high speed connection, Internet access outside the home, Main lines per 100 inhabitants, Households with home access to the Internet, the number of mobile phone subscribers in business and in personal communication etc.

Within the SIBIS framework, in February 2003 a GPS (WP3) was realised in all NAS 10 countries, including Romania. Relevant data were obtained and several charts were developed. Gaps regarding the Romanian position in the field of telecommunication and access in Europe were identified. Due to the results obtained, the Ministry of Communications and Information Technology and other governmental and nongovernmental institutions, can develop new strategic objectives and priorities regarding the Information Society now.

10.2 e-Society and Social Inclusion

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

Previously Romania's WP2, 3 on social inclusion explores the main issues in literature that are relevant for a better understanding of the area being studied, for the related policy making and for directing and influencing research regarding the topic of social inclusion and the Information Society. It also briefly revisits definitions of some of the key terms, with the aim of enhancing the overall comprehensibility, and offering a more complex understanding of the topic.

10.3 e-Education and Life-long-learning

The 'Education' concept is changing. From the formal and pre-defined curriculum in the industrial society, education is today redefined as lifelong learning in the information society. This transformation process is of dual nature:

- On one hand, the educational system will have to adapt to a knowledge economy both in terms of organisational settings, infrastructures and partnerships, pedagogy, curricula and teachers' qualifications.
- On the other hand, users of education at all levels and ages will need to develop another mindset, i.e. moving from an instruction-based understanding of education to a paradigm where the individual most likely will be expected to take a much larger co-responsibility for identifying and continuously developing his/her skills basis in a variety of ways and settings. Likewise, companies and institutions are in the process of adapting to a business environment where skills and knowledge play a much more central role in overall economic performance.

Whether we talk about policy developments related to educational systems or the adaptation process of the individual, companies and organisations to living, learning and working in a knowledge economy – ICT is viewed as a critical enabler.

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

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

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

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

10.4 e-Economy and e-Commerce

The accelerated use of information and communication technologies and the advent of the Internet have put very powerful tools within the reach of citizens, governments as well as large and small business everywhere. This is resulting in profound changes in the internal organisations of governments and business as well as in the relationships amongst business, trading partners, citizens and governments. We now know that these technologies are considered to have a considerable impact on the whole of the economy and those policies, which govern their use, and implementation is decisive in the modernisation of these economies.

The eEurope 2005 Action Plan is to create a dynamic business environment and to stimulate the establishment of an infrastructure for e-commerce as well as the use and mutual recognition of electronic signature.

10.5 e-Work

Romanian WP2 developed on this section explores, by consulting the relevant research literature on work, skills and employment, how information society developments affect supply and demand of human skills, how these interact with forms of work organisation and employment patterns, and in which ways ICTs act as enablers and shapers of change. The main stakeholders in each of the important areas of the Topic are outlined, together with existing indicators.

Skills are the necessary basis (precondition) for the deployment of individuals in the production process (application: *work organisation*), which in turn creates the foundation for *employment* and the value derived from it (outcomes such as productivity, remuneration, work satisfaction). In this sense, employment is the outcome of the labour market procedures that translate skills into work. Whereas skills and the deployment of workers in the production process are not ends in themselves, employment is the socially accepted system through which the capabilities, preferences and needs of individuals are brought to a match. Ultimately, the impact of ICTs on skills and the organisation of work have to be measured according to their contribution to the goal of socially and individually satisfactory forms of employment.

Romania WP2 and the GPS chapters are containing the analysis of all relevant results on social inclusion and some cross-analysis, e.g. combining results on Internet users by socio-economic characteristics.

10.6 E-government in Romania

E-government plays an important function in mediating government actions. Its role will continue to grow as communication technologies become more widespread. Already, communication technologies change the way that government operates by facilitating information dissemination, communications, and transactions. E-government comprises a number of functions currently filled by traditional modes of communications. Transactions that today require face-to-face contact, letter writing, or telephone communication may soon be replaced by electronic interaction.

The Romanian government is making a concerted effort to address the issue of e-government. This is evidenced by the many policy documents issued on this matter. The review of policy documents on e-government shows that governments are carefully examining how e-government will come about. The implementation of e-government is viewed as an opportunity to fundamentally change processes to make them more accessible and effective for citizens and administrations.

Information has already been collected on e-government. Existing indicators address the following e-Europe action lines:

- 3b-1 Efforts by public administrations at all levels to exploit new technologies to make information as accessible as possible;
- 3b-3 Develop a co-ordinated approach for public sector information, including at European level.

Existing indicators provide important insights into e-government. One point they do not address, however, is how e-government compares to existing government. *Citizens* make use of government services throughout their lives. Their decision to adopt e-government services either to replace or supplement traditional services may depend on a number of factors. Accessibility is clearly an issue. If e-government allows citizens to transact with

government in new ways, they may value this convenience. However, if e-government requires that citizens learn to work with unfamiliar technologies, the adoption of e-government by citizens may lag the expectations of decision makers. In addition, citizens may be concerned with issues of privacy.

The SIBIS-indicators on government-to-citizen e-government seek to measure:

- Perception: advantages and benefits of electronic service delivery
- Barriers: barriers for using e-government
- Willingness to use online services by government
- Alternatives: use and perceived usefulness of e-government applications in comparison to traditional means of interaction

Indicators for government-to-government are of increasing importance, but not many indicators do exist. The SIBIS-indicators in this area focus on:

- Type of usage
- Effectiveness: perceived advantages of electronic service delivery
- Barriers for using electronic government
- Perception: improvements of electronic service delivery
- Alternatives: preferred usage of different means
- Potential: system connections available
- Level of usage

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ANNEX 1: METHODOLOGY

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 to 16	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

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 to 16	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