

Development of ICT in Bulgaria

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For the last years the European economic and research landscape has been in flux. As a result of the global knowledge-based competition Europe and the rest of the industrialised world can no longer take their technological leadership for granted. Europe still maintains leadership in certain industrial areas, supported by a well-educated workforce but in the research and technological development an inability to attract the best talent into Europe from around the world is observed. As a result of this trend Europe is, increasingly, falling behind its main competitors. Europe's performance, in terms of growth, productivity and job creation is not sufficient to maintain prosperity in the future. There is a broad consensus in that research, education and innovation are at the heart of any response to these challenges.

THE WORLD ICT MARKET AND EUROPE

On the Figure 1 the world ICT market annual growth is shown.

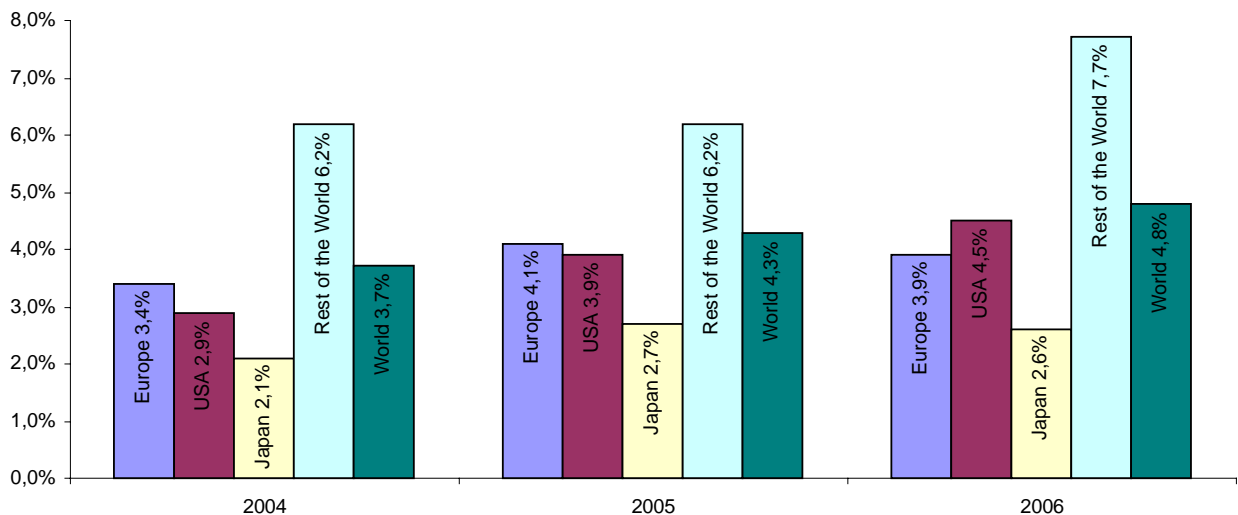


Figure1: The Worldwide ICT market annual growth in 2004-2006, in % - the market value in 2005 is 2,044 billion Euros (Source: EITO in cooperation with IDC)

In the telecommunication market the growth origins are based mostly on sales dynamics of data services and mobile handsets. In the IT market the growth drivers are the computer hardware segment and the modernization of the existent software infrastructure. In 2006 a more positive growth is expected due to increasing demand in all key IT segments. In Europe the ICT growth will be stimulated by the new regulatory compliance in the field of banking, the treatment of the waste electrical and electronic equipment and etc.

The structure of ICT market in Western Europe is shown on Figure 2. The total market value for 2006 is 644 billion €. The IT market (including office equipment, electronic data processing and datacom equipment, software and services) for the same year was about 286 billion € and the telecommunication market was respectively about 308 billion €.

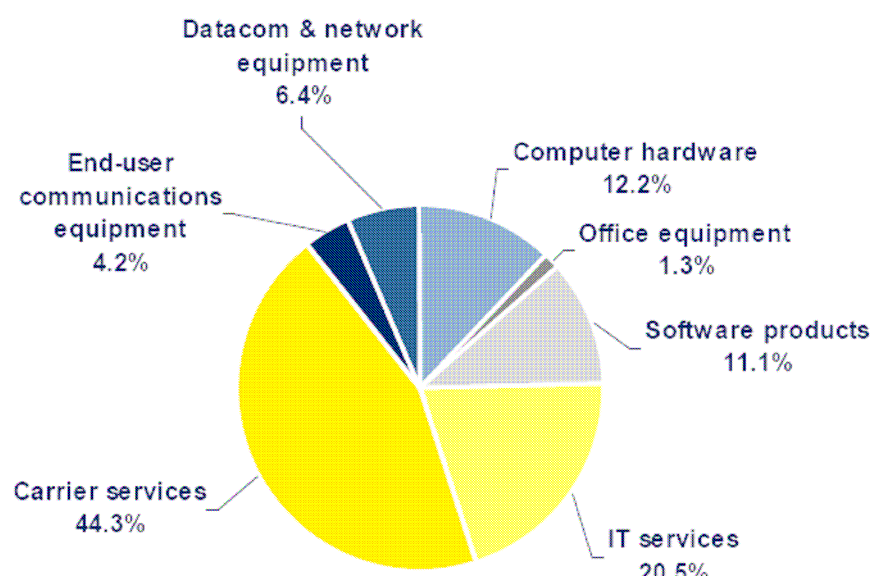


Figure 2: Western European ICT market structure in 2006
(Source: EITO in cooperation with IDC)

ICT market for EE countries is given on table 1.

Europe	2003	2004	2005	2006	2007	2004/03 %	2005/04 %	2006/05 %	2007/06 %
Czech Republic	4.927	5.459	5.770	6.067	6.360	10.8	5.7	5.2	4.8
Estonia	656	750	803	843	877	14.3	7.0	5.0	4.1
Hungary	5.458	5.949	6.394	6.674	6.917	9.0	7.5	4.4	3.6
Latvia	788	917	1.000	1.069	1.112	16.5	9.1	6.8	4.0
Lithuania	963	1.224	1.441	1.463	1.489	27.0	17.8	1.5	1.7
Poland	11.599	13.012	14.456	15.540	16.418	12.2	11.1	7.5	5.6
Slovakia	1.869	2.126	2.290	2.465	2.602	13.7	7.7	7.6	5.6
Slovenia	1.226	1.360	1.437	1.493	1.573	10.9	5.6	4.0	5.3
Bulgaria	1.375	1.757	2.046	2.164	2.327	27.7	16.5	5.7	7.5
Romania	2.964	3.807	4.368	4.822	5.140	28.4	14.7	10.4	6.6
EU	579.471	601.681	623.349	643.336	662.299	3.8	3.6	3.2	2.9
Europe	611.827	636.071	659.456	680.856	701.155	4.0	3.7	3.2	3.0

Table 1: ICT market by country, € million
(Source: EITO in cooperation with IDC)

INTERNET CONNECTIVITY IN BULGARIA

The international Internet connectivity in Bulgaria is provided mainly by the Bulgarian Telecommunications Company (BTC).

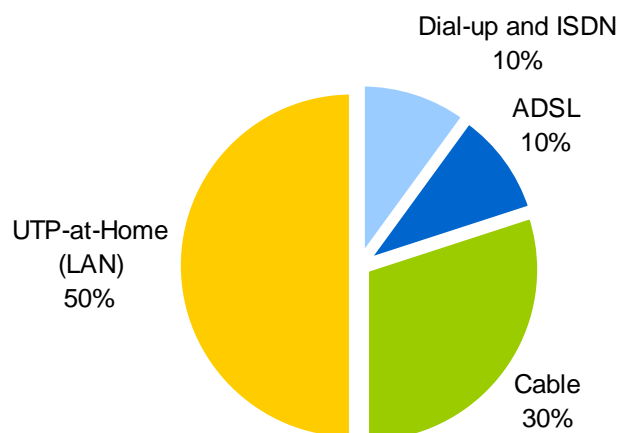


Figure 3: Internet connections in Bulgaria - types and distribution

The average expenditure for the most popular types of Internet access realization – by cable TV and LAN networks is 13 EUR and 11 EUR per month (according to users' data). A significant event in Bulgarian Internet in 2005 is the massive expansion of ADSL connections. The number of ADSL clients jumped from 10 000 in June 2004 to around 170 000 in the middle of 2005. Presently 10% of all Bulgarian Internet users are supplied with this service. The average price for ADSL is about 15 EUR per month. The request for fixed Dial-up continues to fall off. In the EU countries, 80% of the Internet users have DSL, and such tendency is also expected in Bulgaria. The penetration of the digital telephony is going on, and has reached the barrier of 50% at the end of 2005.

With coverage of 65% of the households in the country, the cable televisions are one of the leaders among the Internet providers. The so-called pirate servers have helped our country in the fast development of the broadband access.

The attempts for proposing integrated Internet-voice-television services (triple play) have not a practical realization yet, mainly due to the technological lack of training of the network operators. During 2005-2006 the usage of SMS with raised prices has grown up significantly, as source for organizing advertising games.

ACCESS TO ICT

In the beginning of 2006 about one third of the population in the country has an access to computer. The children are the key factor for computers' penetration in the households. 31% of the households with children have PC at home, while only just 13% of the households without children have PC. This tendency will hold on during 2006, when 11% of the households with children are planning to buy PC against only 3% of the households without children.

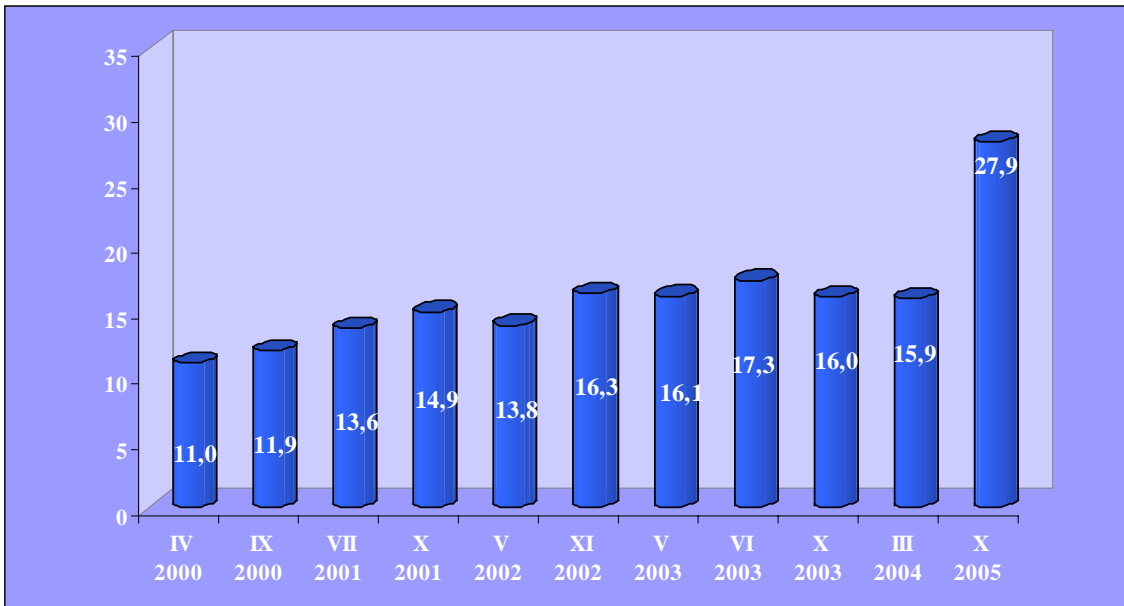


Figure 4: Access to Computers

Home use of computers is comparatively smaller of using computer at work. In 2005 the number of home users marks a growth of almost three times and the PC users at work – of almost twice in comparison with 2003.

The most popular operating system among the home users is Windows XP. The Linux operating system is still not much distributed.

The access to Internet has grown in accordance with the development of the ICT market during the last years. In 2004 nearly 70% of people with computers have had access to Internet, which is nearly 11% of the Bulgarian adult inhabitants.

The trend of rising is stable at the time. Over 25% of the population aged 15 and over use Internet in the first half of 2006, and if the intentions of people for using an Internet in 2006 are being considered, the share of those, who has access to Internet among the population over 15 will exceed with one third at the end of the year.

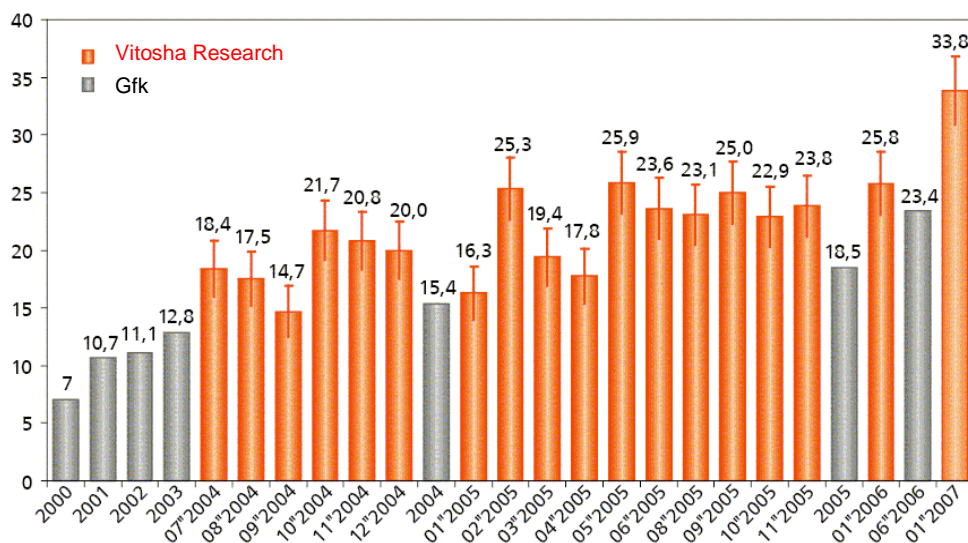


Figure 5: Percentage of population over 15 year who has access to Internet

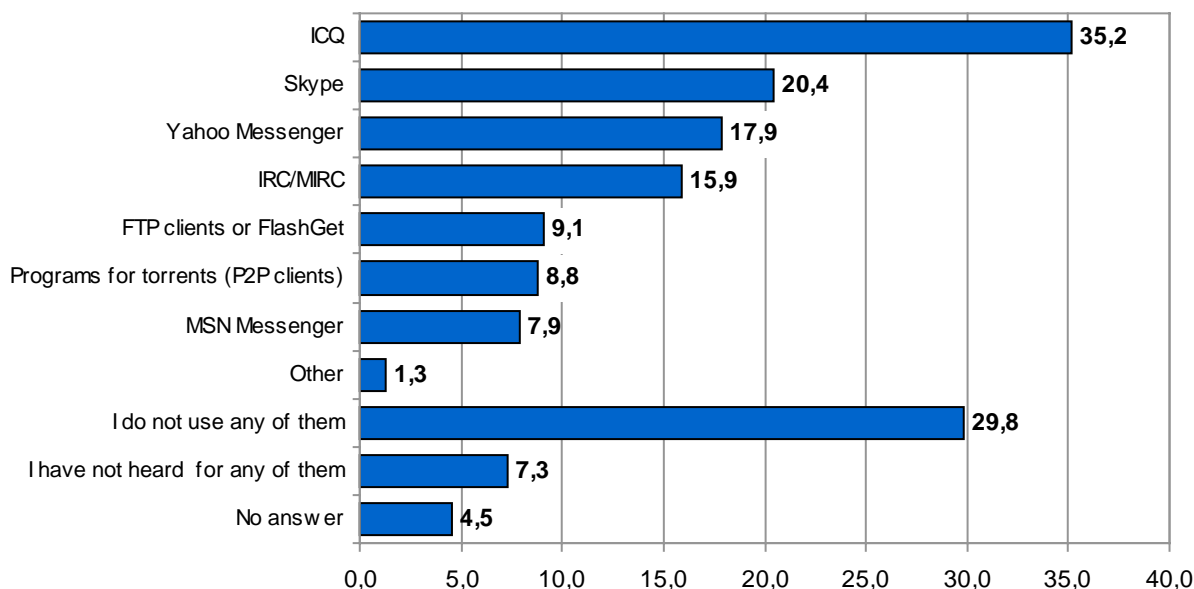


Figure 6: Applications used from Internet users

The fast development of mobile communications and the strong competition on telecommunication market in the last few years, initiated a stable trend of drawing back users from the standard fixed services.

Development is observed according to the greater variety of the functions of the mobile phones. Even more cell phones from source for communication turned in multifunctional high technological instrument, combining a great variety of functions, and in this way compete with the other ICT products.

ICT IN EDUCATION

There have been approximately 57 000 computers in the secondary schools in Bulgaria till June 2006. About 28% of them are under Pentium 3 and 53% are newly purchased from 2005. The regional distribution of computers is very uneven. The maximum number of new computers, distributed to every school is 24, and the average rate in the country is 9.5. Essentially this approach is social-oriented. At the same time it was found that many of the smaller schools in the poorly developed regions practically do not have any administrative and technological capacities to operate with the received computers.

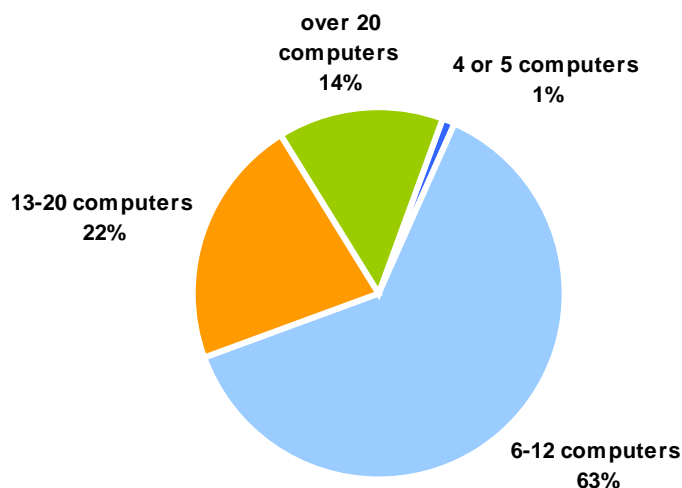


Figure 7: Distribution by number of computers at the schools

As a whole, an objective opportunity is created for students to use computers, but it can not be realized due to different reasons – lack of qualified teachers to teach with the help of computers, the necessity of a specialist, responsible for the technique and for possible lacks and troubles. All new computers are equipped with operating systems and Microsoft office.

A special problem is the elaboration of the electronic content. Till now firms and students has received offers for elaboration, but the quality is still under the requested.

As a whole, the available computers for students' training and teachers' work are increasing every year at the rate of one computer per 100 students. About 80% of the available computers are connected to Internet and different forms of distance learning are used, and assistance of the working hours by the new ICT, multimedia and specializing web-interface.

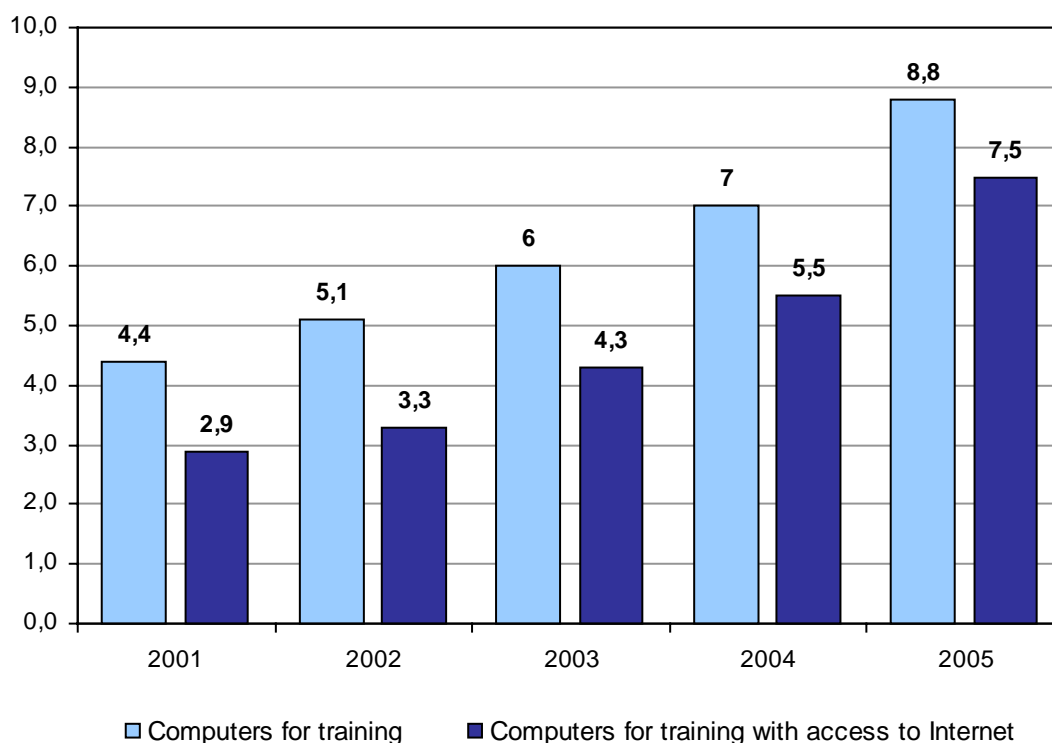


Figure 8: Number of computers per 100 students in the higher education

ICT IN THE BUSINESS

Practically in 2006 all companies in Bulgaria have at least one computer. With the exception of micro family business, which create low added value, provide services or sell goods on a local level, and they are rather some form of self-employed or situated in poorly developed regions in the country. The process of computers' penetration in the Bulgarian companies is rather evolutionary and administrative conditioned, than its being an element from pro-active strategy for increase of the company's innovation.

The share of the employed, who use a computer at their workplace, is growing with 6% on year basis (for the period 2000-2005), but has become distributed unevenly and on comparatively low levels – under 30% for 2006. At about 60% of the companies the computers are used mainly in the secretary, clerk and accounting activities, while only 10% of the companies use some automated systems for management, manufacture or relations with clients. This development is largely predetermined from the domination of the traditional industries in the

country and the specialization in lower technological segments of the high technological sectors in Bulgaria. The Bulgarian companies still have not participated in international production system of knowledge, which require creative usage of IT, and not its usage for lessening the production outlay.

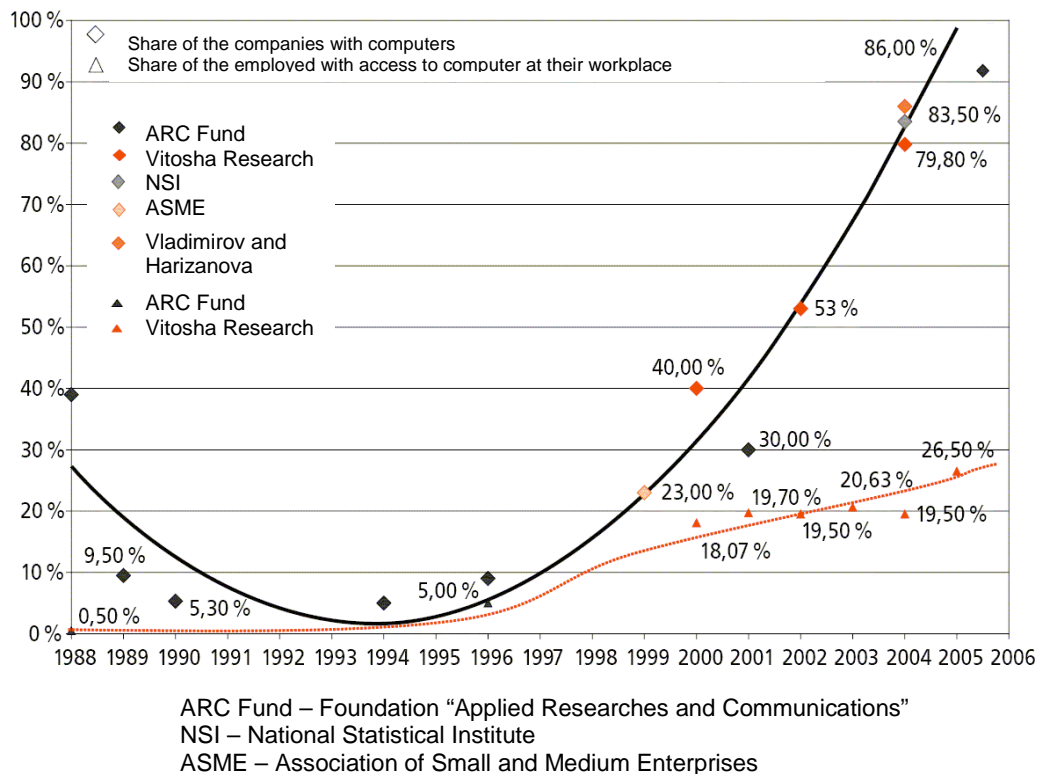


Figure 9: Computers at the companies

As a rule, each company, which has equipped its office with computers after 2000, has an Internet access. Exceptions are those companies, for which the purchase of computer is motivated only with the necessity for keeping accounting funds and giving checks by the computer, so its usage does not require necessary connection to Internet (the workers are busy with the clients face to face). In 2007 the Internet connectivity growth will reach the range of about 90% of the companies and 82% of the computers. In January 2006 between 70 and 82% of the companies and 78% of the computers have been connected, giving opportunity to 21% - 30% of the employed to use Internet at their workplaces.

The Bulgarian companies are already comparatively well equipped with computers, with expected impregnation of the workplaces with computers in the next one-two years. The limits in this growth are conditioned by the (low) technological intensity of the business sectors. The computers connection in local networks and Internet is continuing with accelerated rates, but this doesn't mean that the capacity of the connection is used sufficiently. The great challenge in the area of e-business is how to achieve a structural change and how to migrate whole business segments with lower added value to those with higher, how to increase the total technological intensity of the business and to create niches of demand for high IT – intensive products and services.

The opportunities for IT work are in continuous progress. For already several years Bulgaria has experienced lack of qualified specialists in the area of the information technologies. At the same time the penetration of company giants as HP, Microsoft and other has large positive long-term effect.

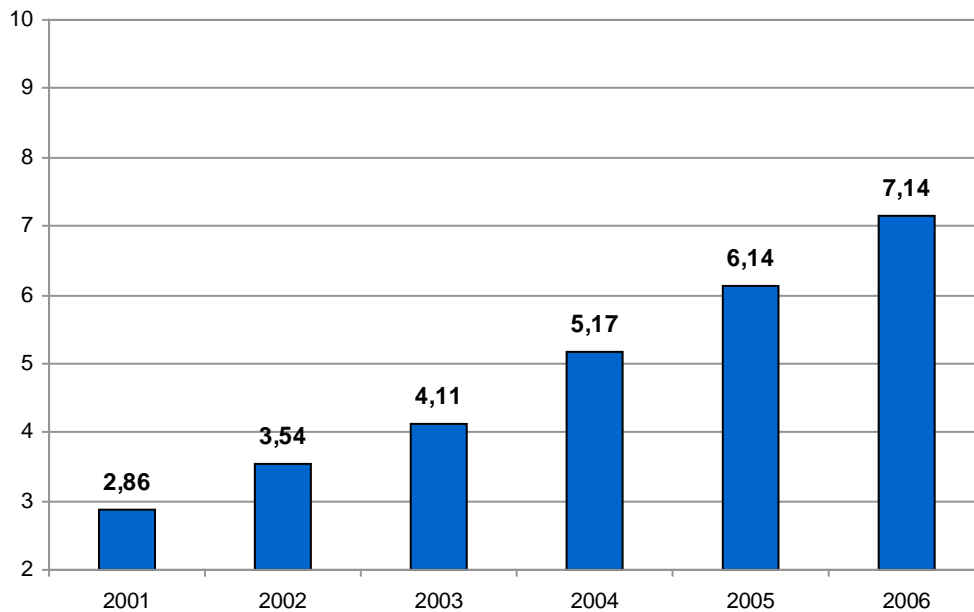
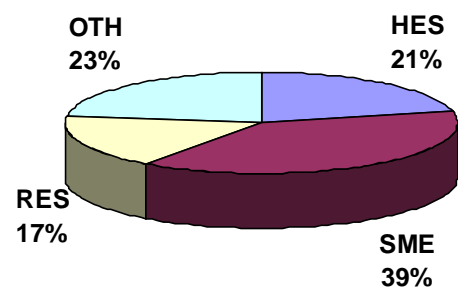
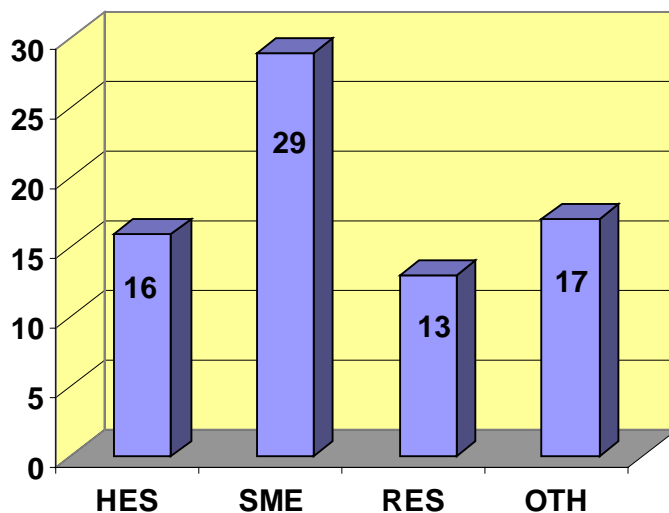


Figure 9: Dynamics of the index e-business (2001-2006)

E-MANAGEMENT, E-HEALTH, E-HERITAGE

New strategies for implementation of IT in the healthcare and in the cultural heritage are being prepared at the moment. In the healthcare it is being involved a building of an integrated information system for health insurance and also an individual health card, compatible with the European standards.

With the help of the information technologies the cultural heritage can be illustrated in 3D visualization, for example the main exposures at the best museums, digital catalogs of the beauty spots with an opportunity for visual watching via Internet.



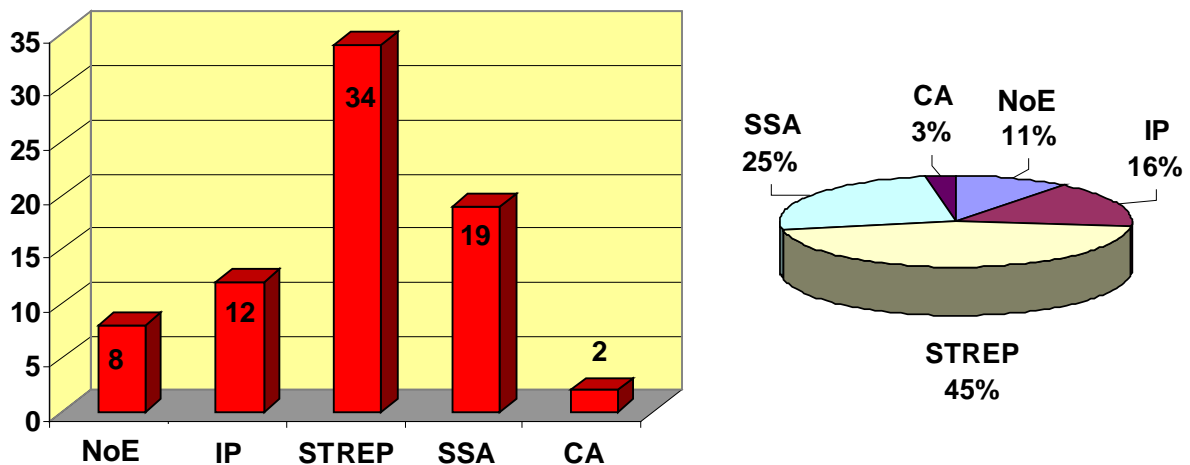
Organizations

HES - Higher Education

RES - Research

SME - Small and Medium Enterprises

OTH - Others



Instruments

NoE – Networks of Excellence **STREP** – Specific Targeted Research Projects
IP – Integrated Projects **SSA** – Specific Support Actions
CA – Coordination Actions

Figure 10: Number of the projects with Bulgarian participation in the VI Framework Program

The development of science and scientific research has not been well financed by the state yet. Only 0,4 - 0,5% of the Gross National Product have been spent for scientific research, which is extremely insufficient. The financing of the universities and the Bulgarian academy of sciences is centralized by the state. Part of the state funds for science is given to the National fund for scientific research, which works on a project principle.

The significant financing for scientific research comes from projects of the EU framework programs. Bulgaria has participated very well in them. On figure 10 it is shown the respective statistics of the Bulgarian participation in the VI Framework Program. The total amount of the contractual financing of the Bulgarian participants in the VI Framework Program is 10 230 365,78 EUR.

E-management is a broader concept than e-government, which is defined as “a system, which combines usage of information and communication technologies by the state administration with organizational changes and newly gained abilities, leading to improvement of the public services and the democratic process”. The concept “e-government” in the Bulgarian conditions has being mainly considered as services, which the state provides to people and business in electronic way by usage of the achievements of the present information and communication technologies.

The beginning of e-management implementation as a regulatory state policy started with the Strategy for modernizing the state administration – from joining to integration 2003-2006 (2002) and Strategy for e-government (December, 2002). A Plan for implementation of e-government strategy was adopted in March, 2004 for the period till 2005. Despite the fact that, in the plan there were defined a wide range of activities, related to the implementation of the e-management in the country, the main efforts were directed to 20 e-government administrative services for the needs of citizens and businesses, i.e. rather to building e-government.

CONCLUSION

After the continuous production decrease in the area of ICT (1993-2003), a serious advance is marked in the investment process. The Bulgarian Association of Information Technologies (BAIT) begins to hold leading positions at the local and international market. It is being noted a significant activity of the international companies – Microsoft, IBM, HP and others. The activities of the Bulgarian Association of Software Companies (BASCOM) are being enlarged.

We hope that in the near future Bulgaria will take the accruing place among the leading countries in the area of ICT. The scientific research also obtains a serious support from governmental organizations and private companies.

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