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ООО «Гидро-стоп!»

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19. **I. Zatsman** (Institute for Informatics Problems, Moscow). "Security and Trust in Electronic Communication"
20. **I. Zatsman** (Institute for Informatics Problems, Moscow). "Term System Issues of IST Workprogramme"
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Technologies for construction of a low budget urban network
S.Abramov

С точки зрения развития телекоммуникаций, общество может считаться открытым, если все его граждане и организации реально смогут иметь личный, расположенный в удобном для них месте, высокоскоростной постоянный доступ к информационным ресурсам Сети.

Система телекоммуникаций Переславля-Залесского (СТ "Ботик") известна как показательный пример построения городских компьютерных сетей в условиях ограниченного финансирования, построения и эксплуатации их только за счет местных ресурсов.

При создании системы телекоммуникаций СТ "Ботик" был разработан и использован ряд технологических решений с высоким показателем "качество/стоимость". Найденные технологические решения поддерживают:

устойчивую работу сети в условиях нестабильного электропитания и отсутствия обслуживающего персонала в местах размещения оборудования системы;

преобладание постоянных высокоскоростных (10..100 Мбит/с) подключений абонентов к системе над модемными подключениями (85% и 15%, соответственно);

низкие затраты на создание и эксплуатацию системы и, как следствие, низкие цены на услуги связи.

Основные технологические решения.

Использование LAN-оборудование для построения MAN/WAN-сетей

В силу малобюджетности, в городской сети не использовались дорогие изделия, специально созданные для больших сетей (MAN/WAN). Вместо них были использованы массовые изделия, разработанные для локальных сетей (LAN). Такие устройства выпускаются миллионными тиражами и их можно приобрести по весьма скромным ценам. Поскольку кабельное хозяйство также относилось к категории массового, стало возможным применение недорогого активного и пассивного сетевого оборудования.

ПК-роутеры: маршрутизаторы из массовых комплектующих

В силу технических причин крупную сеть нельзя создать при помощи одних только концентраторов и коммутаторов. Требуется еще один вид сетевых устройств - маршрутизаторы. Все маршрутизаторы, выпускаемые серийно, очень дорогостоящие. В связи с этим были применены маршрутизаторы, построенные самостоятельно из массовых, легко доступных элементов. Это так называемые ПК-роутеры.

ПК-роутер является основным звеном в нашей системе, потому что, в отличие от концентраторов и коммутаторов, ПК-роутер позволяет:

гибко управлять потоками информации;

собирать различную статистику;

обеспечивать контроль над всей системой;

объединять в узле связи линии передачи данных разными протоколами, например: линии Ethernet/FastEthernet, RadioEthernet, различные иные синхронные и асинхронные линии передачи данных и др.

Мелкие доработки для повышения надежности недорогих изделий

Как правило, средний по цене домашний компьютер и дорогая серверная платформа при сходных основных технических показателях существенно различаются в цене. Это существенное отличие связано с надежностью функционирования оборудования. Поэтому при использовании массовых недорогих устройств для построения городской сети особое внимание уделяется повышению надежности узлов связи, создаваемых на базе данных изделий, для чего осуществлены небольшие, но исключительно важные доработками (аппаратные и программные).

Open Source: источник программного обеспечения для региональных сетей

Помимо оборудования при создании городской компьютерной сети исключительно важен выбор программного обеспечения (ПО) для ПК-роутеров и для серверов системы, поддерживающих различные службы: mail, www/ftp, proxy и др. Использование коммерческого ПО неприемлемо из соображений экономии расходов на создание и эксплуатацию сетей.

Из всех разновидностей бесплатного программного обеспечения для создания городских компьютерных систем особенное значение имеет так называемое свободное ПО,

распространяемое с исходными текстами (Open Source, GNU и т.п.). К основным преимуществам такого ПО можно отнести:

Бесплатность свободного ПО как при первой установке, так и при обновлении версий.

Свободное ПО поставляется в исходных текстах, над его развитием работают миллионы программистов-энтузиастов во всем мире, в связи с чем оно отличается высоким качеством и надежностью.

Исходные тексты свободного ПО читают и правят миллионы свободных и независимых программистов, в результате чего в нем нет умышленных злонамеренных кодов. Это обеспечивает высокий уровень информационной безопасности городских сетей.

Имеется возможность доработки свободного ПО в соответствии с требованиями конкретной сети.

Рассмотренный набор технических решений разработан двумя организациями в г. Переславль-Залесский: Институтом программных систем РАН и Российским НИИ региональных проблем Минобразования РФ в рамках совместной лаборатории телекоммуникаций "Ботик". В последнее время данный набор технических решений в компьютерной прессе часто называют ботик-технологиями. Вся программная и конструкторская документация наших решений распространяется бесплатно, на условиях GPL. Сегодня эти разработки часто тиражируются в других регионах России.

Strategies for a regional innovative knowledge society: the Southeastern Anatolia region and the Southeastern Anatolia project of Turkey as a case study

B. Acma

Innovation and knowledge are fundamental to the economic development, growth, and future competitiveness of our Regions. Central to strategies of enabling this must be partnership and networking, both local and global – public and private, with action leading to a solid foundation for innovation. As competition is the ultimate driver of innovation, this calls for more entrepreneurial dynamism and greater mobility of knowledge based on an effective use of Information and Communication Technology (ICT) to enable increased interconnectivity between knowledge workers through virtual networking.

In a Knowledge Society it is humans and human capital, their vision and abilities, which are most important to the positive development of our regions, rather than the predominant physical resources and issues of the past. Empowering our people to apply their intelligence, experience and imagination to leverage data and information into a Knowledge Society, requires dynamic regional leadership, a "can do" attitude and a holistic approach to regional development.

A Regional Innovative Knowledge Society requires alternate nodes of development in various local contexts and new mechanisms such as awareness creation, access to telecommunications, education/training, finance, academic/industrial interactions and sectoral networks. This process is recognised at European level and is already happening at local level, as illustrated in Turkiye's Southeastern Anatolia Region and elsewhere.

In the first section of this study, economic innovations depending on knowledge will be presented. In the second section the efforts of Europe Union about innovations will be investigated. In the third section strategies for regional innovation knowledge society will be examined. In the last section the strategies for converting the Southeastern Anatolia Region into an innovative knowledge society will be analyzed.

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IPv6 – the Future of Internet

I. Alekseev, M. Zakharova

New Generation Internet

In the nearest some years network managers should search for the answer to a question how without serious consequences to proceed to the new version of the Internet protocol.

At preservation of existing rates of growth Internet such features of protocol IPv4 as the insufficient volume of address space and an inefficient way of distribution of addresses, begin to constrain inevitably its development. The majority of experts in the field of technologies Internet are sure in necessity of transition to the new, sixth version of the protocol IP. As the indirect certificate this is served with constantly increasing number of the organizations, companies-developers of the network equipment and the software participating in the World IPv6 Forum. At the same time, many consider, that the transition period can be tightened for long, practically unlimited time during which two versions of the protocol IP should coexist peacefully. Therefore the way of transition should provide preservation of compatibility of new units and networks with the protocol IPv4 dominating now in the network. The logic of work and formats of the given two protocols essentially differ, therefore their compatibility should be provided external in relation to them with mechanisms. At correct use of mechanisms of transition process of change of versions of the protocol IP can appear not such complex as it is represented now.

Transition to new technology internet - IPv6

With development of new types of service, first of all WWW, Internet becomes a mass network and experiences unprecedented growth. However together with improbable growth of a network and its penetration it is literally in all areas of human activity, essential restrictions of its technological basis have left on a surface. Today technical questions of development of a network become as never important. The base protocol IPv4 is obsolete and demands replacement, its lacks are caused by that it was developed 20 years ago when anybody and did not think of large-scale and commercial use Internet.

Lacks of the protocol IPv4 are shown, first of all, in exhaustion of address space, an overload of system of the routing, insufficient support of security and quality of service. Also in IPv4 there is no sufficient support of mobile networks.

Now the basic technology internet, the protocol IPv4, in the development has approached to a that stage when its qualitative change is required. With the help of constraining measures and the limited technological decisions (Classless interdomain routing) a problem with exhaustion of address space and an overload of system of routing Internet managed to be delayed, however necessity for transition to new version of the IP protocol becomes more and more real.

Growth Internet today occurs not only due to increase in number of units in traditional networks, but also as a result of occurrence and development of completely new kinds of the market. It is the market of intellectual household and industrial devices. New means of the publication and distribution of audio-visual materials. It and synthesis of traditional networks of data transmission with systems of transfer voice and multimedia of the traffic, becoming of new type of networks: networks with integration of services.

Important advantage IPv6 is standardized support of mechanisms of a safety of transfer of the information through Internet. These mechanisms being a part of the protocol IPv6, allow to adjust ways of protection of the data over a wide range, providing authorization, enciphering and confidentiality of an exchange in general purpose networks. Reasonable use of mechanisms of security IPv6 will allow to avoid the majority of ways of attack on Internet servers which are known for today.

World IPv6 Forum. History. Membership. Goals

Since July, 1999, we have the right to assert, that the Internet protocol of version 6 has ceased to be theoretical development, its occurrence in a real life the coming to pass fact.

And as the proof this was served with association of the largest world operators and manufacturers of the telecommunication equipment in the noncommercial organization "The World IPv6 Forum " which mission consists in the prompt promotion of the protocol of new generation and increase of its availability.

The list of the organizations participating in the given project, differs surprising variety, they are manufacturers, scientific and research institutes, educational establishments, the enterprises of communication, consulting firms and many others.

Creation of the Forum means, first of all, association of general efforts: from individuals up to corporations as a whole, with the purpose of amplification of influence on the organizations on standardization for acceleration of process of creation of the steady and finished protocol.

A world-wide consortium of leading Internet vendors, Research & Education Networks are shaping the IPv6 Forum, with a clear mission to promote IPv6 by dramatically improving the market and user awareness of IPv6, creating a quality and secure Next Generation Internet and allowing world-wide equitable access to knowledge and technology, embracing a moral responsibility to the world.

To this end the IPv6 Forum will
- Establish an open, international FORUM of IPv6 expertise
- Share IPv6 knowledge and experience among members
- Promote new IPv6-based applications and global solutions
- Promote interoperable implementations of Ipv6 standards
- Co-operate to achieve end-to-end quality of service
- Resolve issues that create barriers to IPv6 deployment

Close communications of cooperation were established between official IPv6 the Forum, Russian national IPv6 Forum created by experts of the Yaroslavl state university by him. P.G.Demidov, and academic research network FREEnet, service-provider IPv6 of services. The purpose of the Russian Forum - creation of an active forum of the Russian companies and the organizations interested in research, introduction and application Internet of technologies of new generation.

Russian national IPv6 Forum as the affiliate of the International IPv6 Forum is staging the regular global and national conferences devoted to IPv6 and related technologies and invites all interested service providers, equipment vendors, mobile operators and scientists from Russia and all over the world to take part in these events.

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The telematic applications in measuring complex and database of Borok geophysical observatory

S. Anisimov, E Dmitriev.

INTRODUCTION

The long-term ground-based geoelectromagnetic and geophysical observations is the integral part of geophysical environmental investigations as well as satellite experiments. The informatization of geophysical researches stimulated application of digital technologies directly on the geophysical observatories, creation of geophysical databases, with access via Internet. In the report the effective application of information technologies in monitoring of geophysical fields and development of database of the mid latitude Borok geophysical observatory is considered.

Now Borok geophysical observatory remains unique mid latitude observatory in Russia, leading continuous observations of geomagnetic and air electric fields, air electric current and telluric currents, atmospheric pressure pulsations, Doppler sounding of an ionosphere and some meteorological parameters. Actually, Borok represents a good example of a "geophysical preservation zone" with a low level of man-made electromagnetic disturbances, natural background of seismic noise, absence of industrial pollution and stable water regime. The observatory participates in international programs of geomagnetic observation INTERMAGNET (*http://www.intermagnet.org*) and SAMNET (*http://www.dcs.lancs.ac.uk/iono/samnet/*). Since 1999 Borok Geophysical Observatory database is presented in the Internet. Now the Borok Geophysical Observatory database is the complex information system aimed to collect, to store and to use the digital data on geomagnetic and aeroelectrical fields as well as set of some meteorological and geophysical parameters. The local data logging network and database web-server provide access to the near real time aeroelectrical and geomagnetic data via Internet.

THE DATALOGGING NETWORK

The measuring complex comprises a set of sensors, amplifiers, analog filters, time and acquisition systems. It allows to record variations in a wide frequency range of the following geophysical fields:
- 3-component of magnetic field and total magnetic field by INTERMAGNET geomagnetic station;
- 3-component of magnetic field in network of SAMNET magnetometers;
- 3-component of ULF magnetic field by search coil magnetometers;
- 3-component of telluric currents;
- atmospheric electric field by the electrostatic fluxmeter;
- vertical atmospheric electric current by the "current collector" antenna;
- atmospheric pressure by the liquid microbarograph;
- radio frequency Doppler sounding.

The data logging local area network works continuously, providing the data to database in real time. The data logging network includes the basic data logging system, data processing system, data archiving system, database server and the data logging systems of INTERMAGNET magnetic observatory and SAMNET geomagnetic station.

The analog signals from sensors and synchronization signals from high-precision quartz clock come in a main data logging system, with the built-in analog-to-digital converter. Then the raw numeric data are transmitted to data processing computer to format, average, transfer in physical values, create the graphic files with data plots, transfer data and graphic files to the database server. The database server carries out a database storage and Internet access to data via the database web-site (*http://geobrk.adm.yar.ru:1352*) provide the near real time data to the database.

The basic data logging system is equipped with the built-in analog-to-digital converter. The basic data logging computer software gets analog signals from sensors, makes analog to digital converting and stores data in the buffer hard disk directory. Time synchronization provides by timing pulses from the high-precision quartz clocks, providing the sampling rate 10Hz.

The INTERMAGNET data logging system is included to the geomagnetic station. The data logging software gets data from magnetometers and generates hourly data files formatted according to INTERMAGNET standards. Time synchronization provides by the separate GPS antenna, the sample rate is 1 second for vector magnetometer data and 1 min for scalar magnetometer data. Daily the stored data are copied to the database server and after that they are sent by e-mail to the Geomagnetic Information Node, located in the Institut de Physique du Globe de Paris, Paris, France.

The SAMNET data logging system gets data from SAMNET magnetometer and stores the hourly data files on the hard disk. Time synchronization provides by the separate GPS antenna, the sample rate is 1 second. Daily data are sent to the database server by the data logging network and after that they are sent by e-mail to the SAMNET data server, located in the Lancaster University, UK.

The data processing system makes processing of raw data, including formatting, averaging, trasfering in physical value. The data processing software creates also the files with graphic data presentation to put them in the database web-site. *The database server* provides the database storing and access to data via Internet by Geophysical observatory "Borok" server. *The data archiving system*, equipped with CD ROM recorder, makes monthly raw data archiving on the CD ROM, which is the basic database medium.

THE DATABASE WEB-SITE

Database web-site (*http://geobrk.adm.yar.ru:1352*) is located on the database server. The database description, graphic data representations and the database request forms are presented on the web-site. Note, that the database inquiry processing is executed in real time by database and CGI software.

The database site interface is simple and intuitively clear. Each web-site page has links to the all subsections of the current section, as well as to the current section homepage and to the database web-site homepage. Each sections, related to the separate type of data, has help page, data description page, data request page with fill-out forms and graphic data representation pages. Note, that the graphic data representation pages are generated dynamically by CGI software.

CONCLUSIONS

The Geophysical Observatory "Borok" is equipped with the unique experimental complex for geomagnetic, aeroelectrical and radiophysics measurements with high resolution and sampling rate 10Hz. The observatory successfully works in the international networks of geomagnetic observatories (INTERMAGNET and SAMNET). The Geophysical Observatory "Borok" database provides to researchers over the world the easy access to the geophysical data via Internet.

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WISTCIS project Baku Scientific and Training Centre
T. Babaev

Baku Scientific and Training Centre is an NCP of IST programme in Azerbaijan and take part in a numeral projects of IST Programme., including WISTCIS project.

Main duties BSTC had to carry out in the framework of WISTCIS project were following:

"Carry out the duties of subcontractor to EDNES as defined in the project "New Methods of Working for Informational Society Technologies Programme Promotion to Commonwealth of Independent States (WISTCIS)" executed by EDNES on behalf of EC DG IST, including:

a. Further development of functions, structure and contents of Azerbaijan WISTCIS Information Demonstration centre (IDC) in BSTC;
b. Development of the national WISTCIS IDC Web-site;
c. Running of WISTCIS Workshop **"E-working, Distant Training and Environmental Monitoring: New Opportunities"** in Baku;
d. Organization of the travel and subsistence of national focal points and coordinators and invited EU lectors to the WISTCIS Workshop in Baku;
e. Preparation materials for WISTCIS Newsletter;
f. Implementation of CoBrow at the national WISTCIS IDC for EU-CIS team work;
g. Implementation of the training courses on the EC Fifth Framework and IST Programmes at the national WISTCIS IDC Web-site.

Information Dissemination Centre was created in BSTC in 2001. Since that time IDC has been providing service on acquainting Azerbaijan IT organizations, Universities, Training centres, research institutes and all interested parties with main directions and goals of 5th Framework Program, new telematics applications, telematics tools that show IST Programme objectives and opportunities to the Azerbaijan audience. IDC established in Baku played an important role in the training of IT professionals in Azerbaijan. Azerbaijan IDC maintain working contacts with the producers of IST telematics products in the countries of European Union and participating organizations in the CIS countries.

Azerbaijan IDC prepared several articles for project newsletter, including the article about Azerbaijan e-readiness. BSTC established 14 branches in different regions of Azerbaijan, including computer centres in two big cities: Nakhchivan and Sumgait , and created Information Dissemination Centres in each of these branches. IDCs are supplied with appropriate releases, books and periodicals.

In IDC of BSTC the list of academic, research, private organizations, SME and NGO was collected and reviewed. The organizations were offered to complete questionnaires provided by BSTC. Upon considering completed questionnaires and making inquiries with leaders Database of organisations, that may be interested in participating in IST Programme of EC was created.

IDC in BSTC organises workshops and meetings with representatives of local state and private organisations, SMEs and NGO, provides them with information about FP5, then since 2002 FP6 priorities, mainly IST programme of EC. Participants of workshops were acquainted with rules of proposals preparation, submitting them to EC, partners seeking and forming consortia.

The Azerbaijan Web site on WISTCIS project contains information on main goals, methodology and objectives of the project as well as training courses on preparation new project proposals for participating in IST Programme. The list of all participants and links to their Web sites are available. Links to Web sites of 5 Framework Program, IST Programme and EDNESS had also been placed on Web site.

WISTCIS Workshop "E-working, Distant Training and Environmental Monitoring: New Opportunities" was organized by BSTC 13-14 December 2001 in Azerbaijan State Economic University, Baku, Azerbaijan.

Inasmuch as State Economic University is the first and leading university of Ministry of Education of Azerbaijan, which is engaged in Distant Education and has access to the Internet at the rate of 1 MB it was chosen as a venue for the Workshop.

At all the sessions, workshops and seminars the up-to-date facilities, such as multimedia and overhead projectors, computers with good Internet connection (the bandwidth of channel was 1 MB), were at the disposal of lecturers and other participants of the conference.

Themes of the workshop and EU and CIS organizations and projects invited:
- Telematics and networking support for distance education
- Virtual laboratories and modern teleworking technologies
- Telematics for natural risk assessment and mitigation
- Building the new EU-CIS projects for IST
- EU and CIS projects invited

About 50 papers were submitted to Workshop.

There were more than 500 participants in the Workshop, coming from 40 organizations, including foreign participants. There were 15 participants from Russia, Moldova, Belarus, Ukraine, Georgia, Germany, Austria, The Netherlands, Turkey, France. Representatives from 25 cities of Azerbaijan also participated in the Workshop.

The audience of the conference also included people (mainly students and teachers of the ASEU, representatives of 14 BSTC branches).

Participants of the Workshop visited "Elections" Information Centre of the Central Election Commission and State Students Admission Commission.

As BSTC is the National Contact Point IST in Azerbaijan and WISTCIS Workshop was the first workshop of such kind in Azerbaijan it roused a great interest of not only IT specialist. The Workshop called forth attention of NGO, students, school and university teachers, business companies and research organizations, government officials and e.c.

As the result of Workshop abstracts of presentations in English were issued and gave out to participants. The book includes more than 50 abstracts.

Having wide experiences in creation of information centres in rural regions of Azerbaijan and in training in ICT domain Baku Scientific and Training Centre became one of the leading executors of the NICTS (National ICT Strategy of Azerbaijan) Project. According to the model developed by BSTC in framework of NICTS project 12 new Regional Information Centres were created.

In addition to organizing WISTCIS Workshop in Baku (13-14 December 2001), BSTC organized workshops in its Regional branches and in Lenkoran State University, Gyandja Technological University, Nakhchivan State University and others as well. As the NCP of IST Programme BSTC presented at workshops information about 5FP, 6FP and IST Programme. Present state and perspectives of Internet in Azerbaijan, development of e-business, e-government, distant learning and other issues were also discussed at workshops.

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Universal Broadband Mobility
P.Bodnar

Wi-LAN's LIBRA Series is the only broadband wireless product series in commercial use today that utilizes the technology, known as 256-FFT OFDM, that has been approved as the mainstream physical layer in the IEEE 802.16 WirelessMANTM Standard and in the current draft of the ETSI BRAN HiperMAN Standard, which both will form the basis for WiMAXTM compliant product platforms. This technology is a version of W-OFDM (wide-band orthogonal frequency division multiplexing), patented by Wi-LAN in 1992, which delivers robust outdoor non-line-of-sight performance that Wi-LAN has proven in various commercial networks in over 30 countries worldwide to date.

The presentation will provide information on WI-MAX compliant products as well as Mobile Broadband based on W-OFDM technology. Reference will be made to specific examples that will illustrate the real capability and promise of the technology

About Wi-LAN Inc.

Wi-LAN is a global provider of broadband wireless communications products and technologies, specializing in solutions for secure wireless provision of high-speed data and telephony over distance for enterprises and telecom service providers. Wi-LAN's broadband wireless access products are known worldwide for their high quality and industry-leading technology. Wi-LAN believes its W-OFDM patents are necessary for the implementation of devices using the IEEE standards 802.16a, 802.11a or 802.11g, the ETSI BRAN HiperLAN/2 standard or the current draft of the ETSI BRAN HiperMAN proposed standard. Wi-LAN licenses its W-OFDM technology and has executed non-exclusive W-OFDM license agreements with semiconductor companies. Wi-LAN is the Chair Company of the OFDM Forum (*www.ofdm-forum.com*)and an active member of the WiMAX Forum (*www.wimaxforum.org*). Wi-LAN's common shares trade on The Toronto Stock Exchange under the symbol "WIN." Detailed information on Wi-LAN can be found at *www.wi-lan.com.*

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Mr. Bodnar was the first General Manager of Macomnet in Moscow, was responsible for the market access of Iridium in Central Asia and managed the small scale privatization program in Kazakhstan funded by the World Bank and USAID. He is fluent in English, French and Russian.

Current state of national research and educational network development in Moldova
P. Bogatencov, T. Cibotaru, G. Secrieru, V. Sidorenko, B. Varzari

The importance of National Research and Educational Networking organizations in building of Information Society permanently increases. The Academy of Sciences and leading universities of Moldova united their efforts in implementation common national scale networking infrastructure for scientific and educational community. At the first stage of this joint activity in 1999 a new independent institution in a form of open association – RENAM (Research and Educational Networking Association of Moldova) was founded. The main goals of the Association were formulated as follows [1]:

- to unite the available technical basis, the accumulated experience and created information resources in the framework of one networking infrastructure through the whole country,

- to work out projects and prospective technical solutions for the further development of the created networking infrastructure,

- to exploit basic communication highways and access nodes,

- to provide reliable connection to global Internet.

The Association Council, consisting of the leading scientists, scientific managers and specialists in the sphere of information technologies from various organizations of Moldova, is the main coordinating body of the Association. The NOC (Network Operating Center), permanently working subdivision, ensuring the solution of current technical problems of the networking infrastructure exploitation and working out a prospective policy of the networking infrastructure further widening, is functioning in the structure of the Association.

In 2002 the Ministry of Education of RM, the Department of Informational Technologies of RM, the Academy of Sciences of Republic of Moldova, State Superior Council of Science and Technology Development, State University of Moldova, Technical University of Moldova (further Sides) expressed their intention to support RENAM network development and had accepted the agreement about following:

- Sides realize the importance of promoting of the research and educational institution's collaboration with the aim of coordination and consolidation of joint efforts in foundation of developed informational media of the science-educational community of Moldova. It is an essential element of the social progress and the development of the Informational Society in Moldova.

- Taking in consideration the positive practice of the European countries, Sides promote and distinguish as the main subject of this agreement the creation of the necessary premises for continued and efficient development of the existent academic scientific-educational data network - the joint strategic platform for building of informational system for the whole area of the science and education community of Moldova, integrated into European and world informational system. Having this aim the Sides accept following:

  o To consider the opportune creation of the NREN (National Research and Education Network) of Moldova as a joint structural base in the creation and development of the infrastructure of the specialized informational network for the branch of the science and education.

  o To assign the functions of NREN of Moldova to existent network named RENAM, represented by the RENAM Association and created on the NATO Scientific Council's base of grants and other international organisms with the aim of providing the scientific-educational societies of Moldova with a developed infrastructure of data communications network.

  o To create the Coordination Council of the NREN, which consists of the representatives of the Sides with the functions of generation of joint initiatives of planning, coordination and appreciation of the realizes, accenting the importance of the agreed elaboration of the national and international projects wit the aim of the efficient utilization of the human, material and financial resources, orientated to the development of the informational corporate branch of the science and education of Moldova.

- Sides supports the activities of the cooperation in the field of the information technologies having the aim to provide the help of the international organisms in active integration of Moldova in the scientific-educational and world international area with the access to GEANT and other Trance European networks.

The analysis of the accumulated experience allowed to specialists of RENAM to launch in 2003 some projects of the further improvement of the networking infrastructure and its transition to the new technological basis. The necessity to introduce new perspective networking technologies and services, modern educational systems, new distance learning technologies and applications require the increment of capacity of internal and external communication links, communication equipment possibilities and introducing new communication technologies offering High Quality of Service parameters. As the result it will allow applying new methods of representation of information, interaction with information resources and also many other modern networking services and technological solutions will become available. Implementing at present Gigabit fiber highways will cover the most intensive traffic points and these fiber channels structure will allow providing high throughput interconnections among all principal nodes of RENAM network. The kernel of this infrastructure is based on modern capacitive backbone and campus switches of Cisco Systems Corp., which offer possibilities to organize high-speed connections including Gigabit Ethernet and OC3 155 Mbps capacity links. The practical realization of new fiber based communication medium project became available due to establishment direct contacts and touch collaboration with the main communication operator of Moldova – Joint Stock Company "Moldtlecom", which provided possibilities to install dark fiber segments for RENAM network and offered some Gigabit flows in accordance with RENAM infrastructure development scheme.

The program of improvement of external Internet connectivity envisages the following separate projects of new links construction and existing ones upgrading:

- providing access to GEANT Trans-European network by realizing the project of direct connection with the scientific and educational network of Romania RoEduNet;
- creation of two new satellite channels, using existing VSAT equipment;
- joining RENAM with UNREN: the NREN of Ukraine;
- increasing capacity of the local Internet Exchange connection.

The successful realization of the currently adopted program of the Moldavian NREN widening will allow ensuring IST principals' promotion and making a significant pace in creation of Informational Society in our country.

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Development problems of information society in the context of new methodology for cognition
V.Bondarenko

The new methodology helps to reach understanding of those conditions of human life on the Earth, with realisation of which the time between the emergence of the societal need and the need of a human individual - passing along the single time vector of human community development – can the ever more rapidly approach the zero point.

The paper presents and develops the system interdisciplinary approach to consideration, study, research, juxtaposition, analysis, identification and cognition of logical laws in development of any countries and civilisations in any spatial and time sections as well as in development of the entire human community as an integral system from the viewpoint of a single ultimate goal to be attained in the course of development.

Today the time between emergence and satisfaction of a need is different for different communities, and does not coincide either for any given moment, or in dynamics. Furthermore, the processes of changes in time can be positive and negative, cyclic and wave-like, or direct and reverse. If these processes are considered with regard to a specific individual rather than to communities, then the numerical value of this variety would be measured as digital values in multiple extents. For example, every individual lives as if in his/her own sphere, under the influence of his own centrifugal and centripetal forces, within the Brownian motion, and his/her own microcosm, which does not coincide with microcosms of others. Therefore, if civilizations, nations, countries, minor and major communities, as well as specific individuals are located in different linear and spherical space of time, they would never understand one another, and are likely to be in confrontation rather than start a dialogue.

In order to concentrate the entire human community within one and the same space of time, it is necessary to meet the following conditions: to form information society is formed for all and the same time for each specific human individual; and, to introduce a specific individual into the system of relations – that is, to orient production of material and spiritual benefits, in their infinite diversity, to needs of a specific individual, without producing anything redundant. And, vice versa – the information society cannot be deemed as created unless a real and specific individual is present there. All material conditions for making a transition to such relations are already available on the planet. Only in this way it would be possible to conciliate all sorts of human interests as well as to reach a compromise between needs of humans and potentials of nature.

The IST project WISTCIS: background, state of the art and prospectives
J. Bonnin , A.Gvishiani, T. Shulyakovskaia, A. Soloviev.

The project "New Methods of Working for Information Society Technologies Programme Promotion to Commonwealth of Independent States" (WISTCIS, IST- 1999-14106) is coordinated by International Association EDNES ("Earth Data Network for Education and Scientific Exchange") and is funded by Information Society Technologies (IST) Programme of the European Union.

WISTCIS uses many elements of the structure of Information Demonstration Centres (IDCs) deployed in focal organisations in Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia and Ukraine and encourages EU-CIS teleworking for benefits of IST Programme. In this way WISTCIS ensures its continuity with Telematics Applications Programme (in 1996-1999) as far as IST collaboration between EU and the European CIS countries is concerned.

The important objective of WISTCIS is to accelerate emergence and further development of telematics activities in the seven European CIS countries creating in this way a huge new potential market for IST products. Pursuing this objective WISTCIS facilitates new working contacts between producers of IST telematics products in the European Union countries and participating organisations in the CIS countries. Such contacts are deployed by the project into efficient East-West target oriented working teams. New methods of work are implemented for these teams to embed them into real environment of the Information Society. Thus WISTCIS is directly related with IST Programme as a whole, as well as with its key action (ii) "New methods of work and electronic commerce". The project also contributes to three other key actions. WISTCIS significantly contributes to expansion of IST Programme on huge community of the seven European CIS countries: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia and Ukraine.

At the same time, the project WISTCIS is closely related with several concrete IST projects, in particular, CoBrow ("Collaborative Browsing Toolkit") developed by University of Ulm, Germany, and the certification service for electronic proposal submission developed by PricewaterhouseCoopers (PwC), the Netherlands.

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The digital Earth: why not?

S. Cherkasov, D. Cassard, F. Robida

In the last decades, informational revolution provided facilities pushing multiple scientific groups for creating digital models of our planet. Diversities of these attempts make us intended to review the up-to-date state of the problem.

All the models in work are being presented by databases that can be divided on local and distributed, technically speaking, and, on the other hand, on specialized and pretending on universality, in terms of their content.

Local spatial databases are more or less customary in comparison with the distributed ones, and we can name, among specialized local databases, such successful projects as geological and geophysical databases created in Cornell University (Ithaca, NY, USA, http://atlas.geo.cornell.edu/webmap/) and in NOAA, USA (http://www.ngdc.noaa.gov/). The Geodynamic Globe developed in Vernadsky SGM RAS makes a good geological-geophysical compilation of 1:10,000,000 scale for the whole world. In Japan, in 1996, the Earth Simulator project had been started, and it can a great success after putting into operation the most powerful in the world computing cluster of the same name. The main goal of the Japanese project is declared as prognosis for global changes, and relates, mainly, with climatic issues, which involves the development of complex multi-thematic models..

At the moment, ESRI is, undoubtedly, the leader among groups working on local spatial databases. The ArcAtlas "Our Earth" contains more than 40 thematic layers and is being widely used for different purposes around the world. Nearly all mapping projects of 1:10,000,000 and less detailed scale use geographic layers of the ArcAtlas.

After viewing successful local projects, we can see completely different story when we go to the distributed spatial databases. Such databases are being created as for data proper, so for metadata. Among the latter we can mention the database developed in the University of Iowa State (http://www.cgrer.uiowa.edu/servers/servers_geodata.html#directory), which is one of the most often being updated metadata databases, and contains hundreds of references on commercial and open sources. Many other examples can be easily found in the Internet.

In the USA, the FGDC site also offers a link to more than 250 geographic databanks (http://www.fgdc.gov/)

One of the earliest distributed spatial databases is World Data Center System – WDC (http://clust1.wdcb.ru/) under International Council of Scientific Unions. First such data centers had appeared in China, in 1988. Today, many of the centers are in operation, but the system itself is not well organized, and looks rather as a distributed bank of different data without proper interface, not as database in modern meaning of the term.

We should mention, also, may be, the most publicized project of the kind, The Digital Earth, (http://www.digitalearth.gov/). The project was proposed by USA Vice-president Gore in 1998, the head agency is NASA, and active members included US organizations. Under the same name of Digital Earth, and supported by NASA, other participants joined together to share experiences and projects (including USA governmental agencies, universities, and private organizations; Canada, China, European Union, and Israel). Coordination of the work is being executed by Digital Earth Steering Committee - DESC, Interagency Digital Earth Workgroup - IDEW, and Digital Earth Community Meeting - DECM).

A similar project named "Terre Virtuelle" is being developed by the French Geological Survey (BRGM), and it is the only notable project emphasized on geological content (http://infoterre.brgm.fr/)

Despite of a notable progress in the development of exchange standards for geographical information (see the work or the standardizing organizations : OGC http://www.opengis.org/ and ISO TC211 http://www.isotc211.org/), all the projects of distributed spatial databases face serious difficulties related with problems of metadata standards, interoperability, and psychological problems, which is, probably, the most important barrier on the way. Things are a bit easier when we go for geophysical databases, as far as here we deal with digits attached to coordinates. But, when we go for geology, different institutions use, for example, different concepts of work, and, consequently, different ways of data interpretation. It is quite difficult to combine, or even to consider together, the results of different interpretations. At the same time, for any institution, to overcome the way of work, to which the institution is adjusted, is also a problem.

Thus, we know, that we do have a hardware and software allowing us to create, practically, as detailed Earth's model, as we want, but, it is nearly impossible to do that in terms of standards, interoperability, compatibility of interpretations, and, at the end of the day, management and psychological barriers.

It is possible, that the problem raised at the state level (such as "Digital Earth"), still have some chances to succeed. Also possible is the use of some hierarchical multidisciplinary structure, such as Russian Academy of Sciences. But, up to date, the problem is still open.

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Government enterprise architecture, Government services, and Government ICT budgeting
V. Drozhzhinov

Enterprise architecture (EA) concept development and usage is now the main tool for e-governments strategic planning, realization and evaluation all over the world (www.feapmo.gov , http://www.ichnet.org/ , http://www.zifa.com/, http://www.eurice.de/infocitizen/index.htm, http://www.eacommunity.com/, http://www.enterprise-architecture.info). EA approach imposes some widely accepted principles of public e-organisations design and supporting IT development:

- Reduced integration complexity enabling integration and interoperability of information systems not only within and across agencies, but also across jurisdictions. This ensures that information systems, or parts of information systems, will be reusable by other agencies.
- Promotes a whole of Government approach to the use of data, so that it can be used across agencies, taking into account legislative and privacy requirements.
- Makes information systems be designed in the business event-driven mode. This may involve consideration of business processes that may cross traditional organisational boundaries.
- Government held data needs to be made available in a timely and accurate form and therefore must be captured and validated once, at the source. These sources, known as 'authoritative sources' will act as information stewards. The authorised data must be accessible and available for reuse by any entitled system and/or business process. This will ensure that agencies will be accountable for the definition and the quality of the data.
- Information systems must be implemented in compliance with Government security, confidentiality and privacy legislation and policies. Information must be protected against unauthorised access, denial of service and both intentional and incidental modification. This will safeguard client information and ensures that it is used as the client has requested.
- IT products must, wherever possible, use commercially viable standards based technologies. IT products used by agencies should adhere to industry standards and open architecture, for example, interoperability standards. This will reduce the risk for agencies and allows flexibility and adaptability in product replacement.
- Total cost of ownership (TCO) for IT must balance development, support, disaster recovery and retirement costs along with the costs of flexibility, scalability, ease of use/support over the life cycle of the technology or application. It needs to include the costs and benefits to the whole of Government, recognising that the costs may be incurred by one agency but the benefits by accrue to another. This will enable improved planning and budget decision making.
- Government must employ formal practices, methods and tools for all stages of a business project, including the design, construction and implementation of IT systems and project management methodology. This will ensure quality assurance, repeatability and consistency for business projects with an IT component.
- To the maximum extent possible, information systems should enable and enhance the provision of government information and services to citizens, business, and other jurisdictions. This will enhance the integration of services to the community from all tiers of government.
- Information systems must support multiple delivery channels to the community. This will mean the community can continue to access Government product and services in a variety of ways.
- Government has a responsibility to ensure it can provide services to an increasingly diverse community. On this basis information systems must adopt a wide range of principles to promote accessibility.
- Information systems that support business activities must be robust, responsive and reliable, with appropriate redundancy to protect against failure. This will ensure that expected business service levels can be maintained 24/7, especially during times of crisis.
  - Government should plan, design and construct for growth and expansions of services. This will be enable a quicker response to growth and change, and in the longer term be more cost effective.

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"Local municipality management using contemporary IT and media facilities"

A. Dusman, V. Korb, D. Stolbov

The report describes operation of the computer system used in managing the decision-making process, registration, and monitoring performance in political and executive branches of the municipality of Kohtla-Jarve, Republic of Estonia.

The report particularly stresses the infrastructure and development prospects for databases and city's internet portal – component parts of the public sector's IT system – and the proposals for international cooperation in this area.

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About the experience of realization of the common information projects in Baikal Region

V.Glazyrin

The developing of information technologies gives the universities and scientific institutes from the different regions the possibility for successful realization of the common information research projects.

For example we have a good experience of team work of Institute of System Dynamics and Control Theory of Russian Academy of Science (Irkutsk), Buryat State University (Ulan Ude) and Chita State University (Chita) during the Global Environmental Fund Programm "Conservation the biodiversity in Baikal region". As the result of the common work we have the GIS, Web-site with mirrors and Public Internet Centre where everybody can receive information about the conservation the biodiversity of Lake Baikal.

The another example of successful collaboration of this institutes is common work under the project of the Federal Programm "Integration" " Creation of integrated information-calculation net for the scientific and education institutes of Baikal region".

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"Civil networks as the way to informational society"

A.Gladilin, M. Naumova

В последние время наблюдается ускоренное по сравнению с модемным доступом развитие подключения домашних компьютеров к информационно-вычислительным сетям по так называемой «выделенной линии». Безусловно, такая динамика сохранится и в будущем.

Ключевыми в части выбора типа подключения и провайдера услуг связи для пользователей становится спектр и качество предоставляемых в сети сервисов. Наряду с традиционными сервисами, в последнее время получают все большее развитие новые типы услуг, порождающие большие объемы трафика (например, цифровая фотография, видео на заказ и т.п.).В связи с этим исключительно актуальным становится вопрос бесплатности локального трафика, т.е. трафика в пределах одной автономной системы.

Гражданские Сети – это информационное пространство со свободным трафиком внутри системы для всех: граждан, органов власти и правопорядка, культурных и образовательных учреждений, предприятий и организаций. Гражданские Сети позволяют внедрять последние разработки в области высоких технологий: -IP-телефонию; электронные платежные системы; электронный документооборот; разнообразные «Справочные»; электронные системы учета электроэнергии, воды и тепла в муниципальных хозяйствах; видеонаблюдение в жилых кварталах с доступностью через сеть в режиме реального времени, домашние радиосети для управления домом и многое другое. Важен и социальный аспект: Гражданские Сети обеспечивают свободу безграничного общения внутри системы людям разных поколений и взглядов, ведь виртуальное общение, не заменяя, безусловно, реального, зачастую для участников диалога гораздо проще и легче. Также в условиях одной системы телекоммуникаций имеется возможность свободного общения с населением посредством видеоконференций и форумов; размещения в сети районных и городских электронных газет.

В проекте «Гражданские Сети» учитывается различие в доходах отдельных групп населения. Для этого практически в каждом доме можно открыть точку свободного доступа к информации для малообеспеченных граждан. Таким образом, Гражданские Сети расширяют круг знакомых, позволяют постигнуть новый уровень человеческого общения.

Все вышеперечисленное способствует быстрому насыщению сети собственными ресурсами, т.е. ресурсами пользователей. Единое информационное пространство – Гражданские Сети позволяет решать задачи открытости городского управления перед населением любого региона. Через создаваемый механизм информированности населения закладывается фундамент открытости властей, формируется методика обратной связи население-власть-население.

Нельзя не замечать факт существования Гражданских Сетей. Если не строить гражданские сети профессионально, то мальчишки будут взламывать замки московских чердаков и тянуть провода, стремясь к совершенному, свободному обществу. Гражданские Сети – последний, динамично развивающийся рубеж перед конечным пользователем. При соответствующем внимании и инвестициях Гражданские Сети способны внести весомый вклад в быстрое построение информационного общества.

"MSUnet today and tomorrow"

A.Gulyayev

Исторически, Интернет-узел МГУ является крупнейшим Интернет-провайдером, для науки и образования. Использование современных технологий, высокий профессионализм работников, тесное взаимодействие с научными институтами – все это позволило развернуть, поддерживать и развивать современные принципы построения сетей.

Огромный компьютерный парк, сконцентрированный на относительно небольшой площади факультетов МГУ, дает широкие возможности для отработки перспективных Интернет-технологий.

Information support to Russia's participation in the EU framework programmes
L.Gohberg, A.Pikalova, A.Sokolov

One of the key obstacles hampering participation of Russian RTD units in the EU framework programmes is the lack of information and consultancies in Russia as well as very small and uncoordinated information on potential Russian partners available in the EU member states.
To bridge this information gap the State University – Higher School of Economics provides complex studies in the following main directions:
1. Support to co-operation with international organisations in the field of information and communication technologies (ICT) funded by the Ministry of Economic Development and Trade of the Russian Federation in the framework of the e-Russia Programme.
There are organised regular events including presentations of FP6 IST programme in Moscow (May 2003) and St.-Petersburg (December 2002), a meeting of representatives of e-Russia with international organisations (with participation of EC Delegation in Moscow and TACIS), seminars on different aspects of co-operation in ICT. There are prepared and widely disseminated information materials on international co-operation in ICT. An Action plan of Russia's international co-operation in ICT for 2004 is being prepared.
2. Organisation of international events devoted to S&T co-operation between Russia and the EU (Vienna, 2000; Brussels, November 2002; a number of seminars and working meetings in Moscow and S.-Petersburg).
3. In the framework of FP5 INCO-Copernicus there was created an information interface system for support to EU-Russia RTD co-operation combining publication and dissemination of information briefs in Russian on new calls, current changes in FP5 programmes, publication of Directories "Russian R&D Units" covering all major RTD institutions sorted by EU RTD priorities, and "Information Networks" containing data on federal and regional bodies dealing with S&T, academies, S&T foundations, state research centres, scientific associations etc., creation of a web-site on FP5 in Russian and English. Russian scientists were actively involved in participation in FP5 via free consultancy services.
4. The Higher School of Economics in a consortium with other Russian and foreign institutions is launching a new project under FP6 Specific Support Actions. There will be continued activities on information and organisational support to Russia's participation in FP6 with particular efforts towards involvement of SMEs and enhancement of innovation activities. There will be developed a web-site, organised consultancy services in HSE and SPbSU. Jointly with the Austrian Bureau for international S&T co-operation (BIT), there will be organised a training seminar in Moscow. Information bulletins on EU RTD programmes in Russian will be prepared and widely disseminated. To inform EU partners there will be developed a database on Russian technological achievements and leading RTD units, it will be available in English on the Internet.

Distance learning and video conferencing tool (Dileco)
L. Grigoryan, G. Sargsyan

About Dileco

Dileco is registered in May 27, 2003 in Source Forge net http://sourceforge.net/projects/dileco. It is approved by Source Forge Management to develop the project under Open Source Armenia project under support Union of Information technology Enterprises. Therefore, Dileco is registered in Open Source Armenia Project and is being developed under GNU license. It is planned to be tested during e-learning project at E-Armenia Foundation in the Framework of Armenian Development Gateway.

Dileco (Distance Learning and Video Conferencing) is aimed to allow video and audio communication within a country using the existing telecommunication system. The software will enable educational institutions, SMEs, governmental agencies and international organizations of a country establish virtual links between its departments and other organizations across a country and elsewhere and facilitate communication and contribute to the development of IT infrastructure in the country. The Dileco tool will help individuals, students and trainers in their study process eliminating the geographical barriers and cost implications. The software is specifically important for developing countries, where Internet bandwidth is poor. In the tight economic conditions and the high demand for quality education and communication, the Dileco tool has the potential to become a viable and most demanded product for SMEs, educational institutions, and the public sector throughout a country.

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WISTCIS in Russia

Alexei Gvishiani, Michail Zhizhin

WISTCIS IDC in Russia is deployed in Centre of Geophysical Data Studies and Telematic Applications of Schmidt United Institute of Physics of the Earth RAS. Correspondingly, the main focus of the Russian IDC activities is telematic applications for environmental and Earth sciences. Major space physics data resource is developed by the IDC in close collaboration with World Data Centers System. This resource is entitled SPIDR (Space Physics Interactive Data Resource). It is available at *http://clust1.wdcb.ru/spidr/*. Another important internet accessible data resources developed by the IDC is earthquake Strong Ground Motion Data Base (SMDB) *http://perun.wdcb.ru/smdb/* and GPS interactive mapping interface. *http://clust1.wdcb.ru/gps/*. Special web site at the IDC is devoted to new funding opportunities for Russian scientific and educational communities as far as telematic matters are concerned.

The Russian WISTCIS IDC has a wide circle of users from geoscience and environmental protection research institutions, corresponding departments of universities and educational institutions, Commercial companies working with the above types of data. Many of the IDC users actively participate in the projects of different EU programs.

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Russian university network (RUNNet) in research and education infrastructure of Russian education

Y. Gugel, Y. Izhvanov, S. Khoruzhnikov, A. Tikhonov, V. Vasiliev

Last years in Russia are characterized by large changes in telecommunication possibilities for educational enterprises. Some federal programs were adopted on governmental level with substantial parts devoted to development of telecommunications and information technologies in education. One of these programs is "Electronic Russia", another – "Development of Unified Educational Information Environment". It is expected that due to these programs all Russian educational enterprises will have Internet connectivity and access to the information educational resources to the end of 2005 year.

This paper mainly covers position of Russian University Network (RUNNet) founded almost 10 years ago in the unified information environment of Russian education.

RUNNet is one of the largest research and educational networks in Russia. More then 500 universities, colleges and scientific enterprises use its telecommunication infrastructure and information resources. Number of RUNNet users can be estimated as 800000.

RUNNet has 30 regional centers (POPs) in Moscow, Saint-Petersburg, Rostov-na-Donu, Ekaterinburg, Novosibirsk, Krasnoiarsk and other large cities all around Russia. In Moscow and Saint-Petersburg RUNNet has internal traffic exchange with more than 100 other telecommunication operators. It is interesting that approximately 70% of the this traffic today is an internal Russian information exchange. This figure has been near 10% some years ago. This is due to rapid development of national information resources large part of which is of educational and scientific character. Regional centers organized in main universities are not only last mile operators for educational enterprises in their regions but at the same time they plays important role as information resources for distance learning, training and retraining of teachers and as educational information data stores etc.

Russia has a vast territory including rural areas with lack or absence of any telecommunication infrastructure at all. This factor provides high ranking perspective for satellite telecommunications in Russia. RUNNet itself was founded as a satellite network and now we can see a new life of satellite-type telecommunications in Russia. To the end of 2003 approximately more than 9000 rural schools will have satellite Internet connection based on DVB-S or DVB-S/DVB-RSC technology.

One of the main characteristics of any national telecommunication network is its connectivity to global Internet. RUNNet now has 622Mb/s link to NORDUnet (Moscow – Saint-Petersburg – Helsinki) which are used at the same by other networks of research and education such as MSUnet, Radio-MSU/RUHEP, RELARN-IP, FREEnet and some others.

RUNNet tries to be in pace with new telecommunication technologies and use them in everyday practice. RUNnet is a participant of IPv6 project in Russia and plans to establish IPv6 RUNNet – NORDUnet connection in 2004.

Main tasks for RUNNet in nearest future are maintenance of telecommunication access to national educational resources for educational enterprises in Russia, ensuring quality of service complying with up-to-date demands, improvement of connectivity within Russia, implementation of IPv6, mobile and other modern telecommunication technologies, participation in international projects directed to implementation of telecommunication and information technologies in education and science.

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Sharing Data and Knowledge, Using Data and Knowledge and Creating Values in Trust-A Solution of the Digital Divide

Shuichi Iwata

Abstract

In addition to traditional activities by meetings, workshops and publishing for improving data quality, reliability, management and accessibility of data of importance to all fields of science and technology, CODATA(Committee on Data for Science and Technology) is now working to enhance such international activities by (1) project oriented approaches to show exemplars for everyone to follow up fruitful ideas created and proposed in the traditional activities, (2) articulating global issues in global access to scientific and technical data and identifying missions of CODATA through intensive commitments to such global and societal activities as WSIS(The World Summit on the Information Society, http://www.itu.int/wsis/) as well as ones for science and technology themselves, (3)expanding human dimensions to enhance data flows beyond borders, disciplines, organizations and generations, and to extract manifold values from data.

The virtual laboratory approach has been taken as one of effective methods to share and use scientific and technical data and knowledge for variety of solutions. Therefore by an introduction on our experience of developing a virtual laboratory for materials design, possibilities to create values together on the common virtual information platform are discussed. Commitments of the all relevant people there will result in a mutual trust, which will establish a borderless environment to solve global issues beyond the digital divide.

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Ahead of time: The Bel Air Music Website
O. Jorgensen, A. Beriozko

- Bel Air Music Ltd.
- Today's Classical Music market
- The advantage of a smaller and leaner outfit
- Two steps forward, one step backwards
- The Internet business is now consolidating
- New digital delivery distribution systems
- Download the music and burn own compilation CD
- The Bel Air Music website
- A third dimension of cultural, educational and informative aspects
- The Broadband connection is essential
- Credit Card fraud and secure transactions
- Privacy guarantee and order acceptance
- Faulty items and the 30 day return guarantee
- The Future

Ole Jorgensen, Danish National
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Founder of Bel Air Music Ltd.

Computer education classes: the past or still the future
O. Kailova

The main goal of the following work is to demonstrate the problems that Russian education organizations are facing with computer-based teaching. The model of the ideal computer class according to interrogated teachers is presented in the material. The material contains the basic requirements to the effective computer teaching environment. Governmental programs that are performed at present remind the epidemic business automation being the case in early 90s. There have been computers purchased, but no productivity increase trend has been seen behind those processes. Why so? The fact is that the equipment – is the necessary, but not sufficient condition of moving forward. One needs usage methodologies and finally people that are able and ready to use these methodologies.

Being applied to the education sphere it comes like this: the computers and the software, chosen according to some subjective factors, are being supplied and then the teachers have to decide – what to do with all this? Computer teaching in education organizations starts with getting experience of work with popular software. As far as only one teacher takes part in the training, he may either tell something to the whole audience (the lecture format), or explain some things to particular student in an individual way. The first way reminds the education of soviet era, when they tried to teach people operating the computer theoretically, without the computer itself. The second way leads to missing the attention from all audience except for this very particular student.

The possible solution could be education environment, where the teacher could demonstrate the operation of different software visually, not by means of words, and at the same time conduct individual consultancy to particular student. LCD panels and projectors are used to solve this problem mostly as an exceptional case; the high price for this kind of equipment makes such an education a rare thing.

As it was said the keywords in new economy are 'effectiveness' and 'lowering costs'. By costs in education we understand the time costs, because obviously if we manage to teach the students the curriculum at a higher rate, then we can finally produce more qualified specialists within the same terms – and this is the main goal of each educational organization.

Let us try to define the requests that are very common among the interrogated teachers:

1.Substitute the theoretical, paper-based, material with practical, visual and demonstrated on the computer.

2.Perform visual demonstrations for the whole audience. All students have to be able to watch the visual explanation with the help of the computer just like they can hear the teacher's voice.

3.The environment should let the teacher explain some unclear moments to the particular student with no need to go away from teacher's computer.

4.The teacher should have the administrative control over student's computers. The teachers need as broad set of administrative features as possible, starting from the simple PC block to specific file access modes and remote computer restart.

5.Besides hardware and software they need a methodology of applying all this in practice. The curricula should be adapted to modern technologies usage and the teachers should be able to pass special training. Only in this case it is possible to come closer to that ideal computer class of the future.

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The program, goals and objectives of creation of the Encyclopaedic directory «Planet the Earth» (on an example of volume «Tectonic and geodynamics»)

B.Blyuman, L.Krasny

The works on creation new, not having of analogues in domestic and world(global) practice of the edition of the illustrated Encyclopaedic directory « a Planet the Earth » (ED) enter in program, authorized MNR of Russia, direction 3 « Preparation for the edition of the specialized monographies, dictionaries and directories ». From the editions, in some sections close under the contents to ED, and also accompanied by illustrations, it is necessary to mention left in 1984-1991 years. Five-languid « the Mountain encyclopedia », transferred(translated) on Russian: the three-languid edition « Structural geology and tectonic of plates » (« The Encyclopedia of structural geology and plate tectonics, Ed. C.K.Seyfert », (Publ.-in "«World", M., 1990), and » International tectonical the dictionary « (International tectonic lexicon. Eds. J.G Dennis, H.Murawski) (Publ.. "»World", M.. 1991), and also issued in 1999 г « the Dictionary - directory on modern tectonic of a terminology » (author Ch.B.Borukaev. Novosibirsk).

ED pursues the purpose to give the user significant volumes combined of the textual and graphic information. ED is focused on systematized on various sections of sciences about the Earth acquaintance of the user with the items of information in adjacent areas planetology, geology, geophysics, geochemistry and minerageny. The volumes ED will be intrefaced, that will allow the users to receive the system information about features of a deep structure, tectonic and minerageny global, and regional structures of the Earth, and also to consider the Earth as object of planetary system in environment of external influences and power(force) fields determining its(her) geological development. According to the put tasks ED will consist of the following volumes: » A Earth - space body » ;: » a Deep structure, geophysics and geochemistry of the Earth »; « Tectonic and geodynamics; » Minerageny of continents, transitales and oceans » .

The composers of the Encyclopaedic directory «a Planet the Earth » now begin development of the concept, plan to following(next) to that « a Deep structure, geophysics and geochemistry of the Earth» and are ready to cooperation on preparation of this volume, and as volumes "«Minerageny" with all interested persons and organizations in Russia, CIS and distant foreign countries.

Geological-mineragenetic Map of the World scale 1: 15 000 000 - global information mapping and factographic system

L.I.Krasny, B.A.Blyuman, S.I.Andreev

By the incorporated efforts of several institutes of the Ministry of natural resources of Russian Federation (VSEGEI,VNIIOceangeologiya,VIEMS, MNIGRI) is created and the map of the World (GMMW) of scale 1:15 000 000 with four explanatory notes (Geology and minerageny of continents, transitales and World ocean, 2000;   Raw resources of continents and active transitales, 2000; Petroleum resources of continents and transitales (economic estimation), 2000; Mineral resources of World ocean, 2000)was submitted on XXX1 of session WGK (Rio de Janeiro).

However and GMMWand explanatory notes to it are issued by limited circulation (300 copies) only in Russian and by virtue of it are poorly known for a world(global) geological public. It is the first work, where the experience harmonization of representations about geological-structural, mineragenetic and raw resource components lithosphere of the Earth is carried out. As a whole GMMW and explanatory notes to it, where for different geoblocks of the Earth the items of information on heterogeneity minerageny of the World expressed in cost them (in dollars are given. USA) potential, represent global information mapping and factographic of system. It is represented expedient further actualisation of cartographical materials GMMW and factographic of materials contained in explanatory notes, for what the attraction to this work of financial and intellectual opportunities EDNES and WISTICS is necessary.

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Digital Library: Improving the accessibility of the Russian Satellite data in support of the Environmental Monitoring

Efim Kudashev

For many years Russia has been carrying out an intensive program of Earth observation using a range of satellite remote sensing instruments. Relevant missions include PRIRODA-MIR, RESURS and METEOR. Each one of these systems generated a large amount of data that were not exploited as much as they could be especially outside Russia. However, it is important to utilize fully the information provided by these data sets in order to achieve maximum cost effectiveness from these investments in the space program to justify future expenditures on new and continuing programs. In order to be fully exploited, Russian data and information systems need to be easily accessible and linked to and interoperable with other national and international information systems. An example of an important and complementary Earth Observation information system is EOSDIS Project. To encourage the wider use of information generated by remote sensing/Earth observation satellites and to allow U.S. industrial users and academic researchers to locate more easily data and information services, NASA funded the development of the EOS Data and Information System (EODSDIS). Users interact with EOSDIS through the Internet using their WWW browsers. The EOSDIS Search Server is based on Catalogue Interoperability Protocol (CIP) standard and will allow simultaneous searching many remote data catalogues. In addition, EOSDIS includes an Advert and Announcement Server, a Data Dictionary service and a Metadata User Guide. Improving the accessibility to Russian satellite data could make substantial contribution to mitigate natural disaster. Integration of distributed data archives use satellite data flows to deal with various problems of Remote Sensing posed by joint programs for forecasting and mitigating natural disaster. Our paper is directed on complex development of distributed information system of satellite data for the Earth Observation as an estimation of environmental condition, resource studies and damage from natural and technogeneous disasters. It is planned to unit a ground network of reception of satellite data on the territory of Russia. It is supposed to modernize and to integrate into the ramified infrastructure the regional databases of satellite data, receiving from the polar-orbital satellites during the ecological monitoring. The basic segment of developed information system is the Web-Server of the satellite data, which is developed in the Space Research Institute. As a basis of the ramified infrastructure the ground stations of reception in Krasnoyarsk and Salekhard and in Vladivostok are used, and they will be incorporated through Internet with the data archive. This distributed information system integrates in uniform system regional databases, that opens an opportunity of realization operative monitoring of environmental condition and estimation of danger of natural disasters on the whole territory of Russia. It is essential to work out its adequate structure necessary for efficient data retrieval from the archive. The archive structure is elaborated based on the understanding of typical requests of potential archive users. The experience of functioning space archives shows that user requests primarily focus on data representation levels, the name of the project under which the data is obtained and the name of the sensor that provided the data. The archive should be divided into segments corresponding to different data representation (process) levels with each segment subdivided into data sets related to a certain project and instrument (sensor). Efficient organization of information resources and open access to spatially distributed experiment data are founded on the Web technology(access to data including data search and request).The development of satellite natural-resource information software targets the following problems: real time Earth Observation, thematic processing of Remote Sensing Data and filling in of the Digital Archive, geoecological monitoring of the environment, ecosystem condition evaluation through space techniques, access to hydrometeorological information from around the globe. Appropriate metadata management systems are built to provide for the collection and distribution of experiment data and thematic processing results; while the archive is linked to the regional centers of geoecological monitoring via Internet. An important element is the elaboration of interface, archiving and network data exchange structures. This calls for the development of search engines and a remote interactive access regime for external users via Internet to catalogues of experiment data and processing results and the realization of the on-line access mode. Our Digital archive was devised and is functioning in on-line mode as fully interoperable system. INFEO users have no problems in the access to data archive as well as the latter easily exchanges data with the INFEO system. The principle of distributed data processing gains an ever-growing importance for satellite monitoring. Stage-by-stage development of data archive

making possible efficient functioning of a system with only a few units assembled proves to be promising. Thus, the building of an access system to satellite data received and processed at different ground stations begins by setting up of a main server at a network location having developed telecommunications. The information of the main server is updated by the regional centers even via low-speed switching channels. The tasks are included the development of MySQL-PHP bundle for support of the electronic catalogues, the application of the Oracle DBMS for central depositarium, the creation of ecological Databases of satellite monitoring, interfaces to separate databases and remote creation of resources. It is planned to ensure the coordination of the standards and interfaces, integrating regional databases and ecological information resources. In comparison with the developed systems this system of opened access to the regional ecological information has the following advantages and features:

- System allows to carry out the collection and distribution of experimental monitoring data on regions of territory of Russia in the most complete form, to increase volume of the processed information, to ensure with the information a significant circle of the users.

- System provides high-speed input and decommutation of the monitoring data, and also long-term archiving of data sets (not less than 15-20 years); the standardization of formats and carriers of the satellite data.

- In view of large speeds and volumes of the information, transmitted from a board of the satellite, System provides information support to ground structure of ecological monitoring and early detection of natural disasters.

- System provides opened access to the regional ecological information and to metadata structures on-line, transfer of the data, ordered by the users, under the coordinated order of transfer with the help of telecommunication means or in a mode off-line on magnetic carriers.

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The national virtual Geophysical data center (NVGDC)

V. Ishkov ,E. Kharin, I. Kuzmin .

Now the stream of the new geophysical data promptly grows and there is no opportunity to reduce and store these data in one center. On the other hand the data numerous researchers and the organizations and the information on these data and also receive their search and access to them not so is simple even with use of modern information technologies. It is offered to create at a virtual level the distributed geophysical database of all interested researchers and the organizations with use of a global network the Internet.

Access to the data is organized by a hierarchical principle. At the top level there is an information on all accessible catalogues of the data (referring to authors and the organizations of keepers of the data). At the following level catalogues of the data settle down. At the third level the data are located. First two levels settle down on server NVGDC, and the data in part on server NVGDC, and, basically, on servers of the organizations of holders of the data. Search of the data can conduct as as the data, on the set time intervals, and on regions. At the task such as given the information on presence of catalogues with the instruction of holders of the data is given out to the user. Holders of the data define a mode of access to the data. After a choice of the desirable information catalogues of the data are given out. At inquiry of the data the system connects the user to the holder of the data who through the corresponding interface starts to communicate with the user. At the task of a time interval the information on presence of catalogues of those kinds of supervision and holders of the information which are accessible now is given out. After a corresponding choice catalogues are given out to the user. Further the system connects the user to the holder of the data, etc. At the task of geographical region sample of all holders of the data in the given region, then search of catalogues, etc. all over again is made. Received from holders of the data the information at the request of the user can be transported directly to the user, or in proper section of the interface of the user for interactive data processing by a standard set of programs.

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Perspectives of the IST priority of the 6th Research Framework Programme of the European Union (2002-2006)

J.Babot, J-L. Lavroff

This presentation highlights the new opportunities of the 6th FrameWork programme in the domain of Information Society Technologies (IST).

Research in Information Society Technologies, play a key role for long-term strategy. IST is one of the main priorities in the 6th Framework Programme. The importance given to IST research by the Research Council and the European Parliament is reflected also in budgetary terms. The IST budget amounts to 3.8 B Euro.

Today, we are far from taking full advantage of the possibilities that IST can offer. Cost, complexity, unavailability and unreliability are often preventing the further development and broader deployment of the knowledge society.

The IST's priority in the next framework programme is putting the **user, people at the centre of the development** of future IST and aims at "designing technologies for people, and not making people adapt to technologies".

The EU ICT programmes of the 5th FWP have played a key role in setting the path to this new paradigm.

The next framework programme should mobilise resources and aggregate efforts across Europe to address the major challenges at stake. There is a need to build on this opportunity to overcome difficulties and prepare the future.

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A football club and the WWW

J. Loonen

Introduction. In this presentation will be highlighted the significance of using state of the art communication in a local amateur football club. Because of using the internet the presentation got the name "a football club and the www"

General. The Netherlands (16 Million people) has 2792 football clubs with 60.000 teams, united in the Dutch Football Association (KNVB with 1 Million members). All games (program, results and standings) of all clubs are stored in the central database of the KNVB. The database is accessible for all members. Every member has an unique ID. Beside of that 67% of the clubs has a unique web site and this number is increasing every year.

VOAB Goirle. The city of Goirle has 22.500 inhabitants and has 3 football clubs, among them VOAB. VOAB has 750 members and 35 teams. The club is managed by a board of volunteers of 9 persons. Another 150 volunteers are working as trainers, coaches, cleaners, maintenances etc. There is only 1 person paid: the trainer of the main team. This is a professional, skilled according to the rules of the KNVB. VOAB has developed a own web site (www.voab.nl) with a web driven database. All the five hundred games (program, results and standings) per year are stored in the database. This database is updated several times per week.

Here we face a main point regarding communication in a club. Having a web site and a database is not the matter; keeping it up to date is the main focus point. To solve this problem VOAB developed a special tool. In this tool is a ranking of authority regarding the accessibility of the database. The webmaster and the news editor have access to all data. For the rest every coach of a team has only access for his/her own team. The only thing to do for him/her is to keep the scores up to date. It is his own interest to perform well for the team. The members of a team will audit this in a kind of competition. A simple but effective text editor makes it possible for the user to make a report about a game and to publish the standings. The in-built e-mail server makes it possible members to inform about news and changes in schedules of the games. The main editor is responsible for the main team. For this reason is used the NicoRoss Football Manager which allows him to generate the results in a score for publishing on the website.

VOAB is also using a newspaper on the locale broadcast. It is in fact tele text which is managed through a commercial web site, as such accessible from every spot with an internet connection. Beside of that VOAB is using a local news paper for publishing news, schedules and results. Above all this there is free publicity in the regional and national newspapers, and regional radio and TV. Starting the season 2003-2004 the board of VOAB decided to stop with the weekly letter with the game schedules and to manage everything in the future by electronic way. This saves a lot of money for the club.

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Awareness tool for the projects of telework on the TELESOL web-site

J-C. Marot

The TELESOL web-site is providing basis tool for telework implementation. Carry out by JC Consultants, this tool focus attention on good questions about telework implementation processes. This service is targeted at bodies, firms and peoples concerned by a telework project: public authorities in charge of local development, various protagonists of a telework project.

It includes two modules. The first module is an awareness presentation of basis concepts of telework : basic configurations, issues, european growth of telework, best practices to implement telework, case study...

The second module proposes self-aptitude tests on teleworking.

The two modules are inter-linked, in order to browse easily from one to the other.

This contribution aims to present this tool.

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Distance learning systems engineering and e-learning: Training materials on telework (TELESOL IST project) – Training materials on the EU and FP5 (TELEBALT IST project) –On-line training course „distance learning system engineering" (French National Distance Learning Centre) – E-learning course "Issues at stake in the Information Society" (French University of Marne La Vallee)

Information network in the evaluating of the budget needs of social sphere in Tatarstan Republic

V.Migunov

Задача бюджетирования социальной сферы в силу ограниченности бюджетной поддержки образования, здравоохранения, социальной защиты, культуры, физкультуры и др. отраслей требует обоснованного экономного распределения имеющихся ресурсов. В Республике Татарстан Российской Федерации эта проблема решается на основе утвержденной правительством системы социальных стандартов и натуральных норм по отраслям социальной сферы, путем объективного расчета бюджетных потребностей около 50 административных районов республики для основных отраслей.

С точки зрения информационных технологий в основе бюджетирования районов по отраслям лежит полный учет характеристик всех учреждений республики, финансируемых из бюджета; численности населения и демографической ситуации по районам; районных тарифов на энергию, водоснабжение, другие коммунальные услуги. За семь лет развития информационной системы бюджетирования создана обширная информационная сеть, позволяющая учесть в бюджетном процессе каждого года около 3 миллионов значений 48 тысяч показателей для расчета.

В рамках этой сети данные передаются между множеством узлов. Основные из них:

учреждения, финансируемые из бюджета (11000 учреждений, 21000 территориальных площадок);

районные органы управления по отраслям;

министерства и ведомства республики по отраслям;

Центр экономических и социальных исследований;

Министерство экономики и промышленности;

Министерство финансов.

Передача сообщений в сети осуществляется самыми разнообразными способами: пересылка бумажных документов по почте и нарочным, перенос файлов на дискетах, пересылка по коммутируемым каналам, по корпоративной сети передачи данных органов госвласти и управления республики, по электронной почте. По мере развития средств связи все больший объем данных передается в электронном виде, в 2003 году - около 95%.

Для расчета, хранения и сбора данных используется специально разработанное программное обеспечение на основе реляционных баз данных, позволяющее за несколько минут изменить алгоритмы расчета и быстро их отладить. Это программное обеспечение и информационные технологии переданы и эксплуатируются также в других субъектах Российской Федерации: в Республике Башкортостан (бюджет Уфы), в Тульской области (бюджет Тулы) и Ханты-Мансийском автономном округе (бюджет округа).

Development of the graphic editor at the enterprise technical services during information space integration process

V. Migunov

Идущие на всех предприятиях России процессы компьютеризации, объединения рабочих мест в локальные и корпоративные сети с выходом в глобальные, постепенно создают все более интегрированное электронное информационное пространство. Представляет интерес проследить, какие изменения в ходе этих процессов претерпевает прикладное программное обеспечение. Сделаем это на примере двумерного чертежного графического редактора TechnoCAD GlassX, используемого в технических службах предприятия химической промышленности.

Начальный этап. GlassX используется на нескольких рабочих местах монтажно-технологического бюро проектно-конструкторского отдела (ПКО). Чертежи при необходимости передаются на дискетах.

По мере компьютеризации рабочих мест GlassX начинает применяться в других подразделениях ПКО: бюро автоматизации, электротехническом, строительном и сантехническом бюро.

Параллельно с появлением локальной сети развиваются: САПР схем автоматизации, в которую передаются технологические схемы из монтажно-технологического бюро; САПР строительной подосновы и обмен ее чертежами между всеми бюро по локальной сети; импорт схем САПР-Альфа, TechnoCAD Elec, TechnoCAD Power для нужд электротехнического бюро; разрабатывается редактор специальных стилей штрихования для чертежей строительного профиля; ввиду многообразия функций вводятся профили работ, сужающие спектр возможностей до нужных каждому бюро в отдельности.

Возникает возможность вести управление проектной документацией и проектными работами в локальной сети - появляется соответствующая программа, в которой часть программного кода GlassX используется для просмотра чертежей.

В техническом отделе предприятия после появления компьютеров и решения первоочередных задач учета потребовался переход к ведению регламентов производства в электронной форме. GlassX доработан для автоматизированной подготовки технологических схем производства в соответствующих стандартах, а его часть, обеспечивающая просмотр чертежей, стала частью кода интегратора электронных регламентов (работающего также и с текстовыми частями регламентов) и частью кода программы просмотра электронных регламентов с CD дисков на внешних компьютерах.

Интенсификация обмена чертежами потребовала защиты и контроля их целостности. В GlassX эта задача решена методом электронной подписи с автообновлением ключевых файлов по локальной сети.

По мере выхода в глобальные сети передача новых версий программного обеспечения осуществляется по электронной почте, и время от обнаружения ошибки в программах до установки версии без этой ошибки составляет иногда всего лишь несколько часов.

The Thematic Programs Priorities of the Sixth Framework Programme and Potential Benefit for the Russian RTD Community

V.M.Mikhov, M.M.Shtrikunova

It is clear for today, that the basic principles of Russianpolicy in RTD, designated in the document "Basic principle of the field of development of science and technologies for the period up to 2010" and basic principles of Sixth Framework Programme (FR6) "The priorities of the Sixth Framework Programme 2002-2006" of European Community in many respects coincide. Mutual Russian and European interests on various fields of scientific and technological development creates platform for closer cooperation of the Russian and European Union Scientific and Research Communities. Priorities of the FR6, in comparison with previous Framework Programmes, have much more expressed social orientation for the purpose to raise quality of a Europe citizens life. Another new aspect of FR6 is that it is focused on commercialization the results of innovative RTD projects as one of the ways to increase of competitiveness of the European Hi Tech industry.

Within FP6 the Commission of European Community (CEC) provides for researchers only partial financing support (50 %), but does not apply for IPR and potential dividends from commercialization of innovative project results. However, the CEC defines the basic thematic priorities of scientific research, rules for participants (only international consortia) and monitors projects implementation (periodic project reporting and reviewing).

Management of a consortium is carried out by a coordinator, who is one of the participants of the project. As a rule, coordinator is from EU country. The basic functions of the coordinator consist in identification of the potential market for the project results, forming of the project idea, selection of the project partners etc.

Participation in the European projects allows its participants to achieve a number of the advantages, including:

- to have an opportunity for cooperation with well-known and high professional scientists from any European countries;
- to attract investment for implementation of the RTD project due to the CEC co-funding;

For the European researchers to form a consortia (partner search) is not too much complex task because of their knowing each other pretty well, close permanent communications and visibility through their publications in international magazines and their presentations at international scientific conference. The Russian RTD teams have to overcome a number of barriers to join a consortia. Basically the problem of participation of the Russian scientists in the European projects consists in the following:

- the overwhelming majority of the Russian researchers still is not well known among the European RTD community;
- a lack of reliable access to advanced communication facilities;
- problems for the Russian researchers to find internal financial souses for co-funding its participation in the European project;
- a lack of experience in participation in international projects implementation;

Meanwhile participation in the European project can expand essentially opportunities of the Russian researchers in RTD field, namely:

-recognition in Europe;

-improving their own qualifying level by carrying out research together with leading European colleges;

-opportunity to get co-funding for RTD project from the CEC budget;

-opportunity to commercialize the project results by means of well developed European mechanism and of corporative efforts of all project partners involved.

Finally, an analysis of participation of Russia in the FP5 "Information Society Technology" Programme is presented.

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The current status of broadband access around the world

Alexander Mikoyan

Broadband access is a new set of technologies which allow residential users, small and medium enterprises, corporations and other institution gain access to telecommunication networks at high speeds – 64Kbit/sec. and higher. The users can use various types of access technologies: DSL (stands fro Digital Subscriber Line) for access over existing telephone copper pair, over cable TV infrastructure, using Gigabit Ethernet (GE) over twisted pair usually used in high-rises in large cities, via satellite connections or using various wireless technologies. Users usually connect their PCs or LANs to the Internet and/or to their intranets.

The current statistics shows that around the world 57% of all broadband connections are using DSL technologies. However, the mix varies from country to country and depends on the historical presence of cable, regulation. By the end of June 2003 more than 46M DSL lines were installed around the world, Asia Pacific being the clear leader with more than 22M lines. Western Europe has so far more than 13M DSL lines connected.

In the future it is expected that the simple commodity service of high speed Internet access will be used as the basis for the new advanced services such as broadband entertainment. In fact all actors are ready. More and more broadband-ready content is available from the key content providers; manufactures of customer equipment such as Phillips and Thomson are coming with new gadgets geared for the new reality of online networked home, network access providers are connecting more and more customers with higher speeds. The estimates of market analysts show that by 2006 the market of services over broadband will be more than twice as high as the market for connectivity and will reach €40B. Services will take a larger portion of ARPU than price of connectivity.

Russia is lagging behind other countries in the development of broadband. This is especially obvious in Moscow, which is on a par with other large European, Latin American and Asian cities in terms of population income. The reason is prohibiting pricing, lack of regulation, undeveloped demand.

So, broadband is coming and is changing the world how people work, live and communicate. It is moving from basic connectivity to main source of entertainment at homes and absolute requirement at work.

Alexander Mikoyan

Born 1972 in Moscow. In 1994 graduated with honors from Moscow State University, Department of Theoretical Mathematics. Since 1991 worked at the Joint Institute of Physics of the Earth of Russian Academy of Sciences. Since 1996 worked for Canadian telecom equipment vendor Newbridge Networks Corp. In 1999 became the head of the CIS operations of NNC (the company was later in 2000 purchased by Alcatel). Since 2001 Alexander is working for Alcatel in Moscow as key account manager in fixed telecom and satellite projects.

IST project REASON: participation of Russian institutions and SMEs
V. Lantsov, S. Mosin

The goal of the project REASON (IST-2000-30193 - Research and Training Action for System on a Chip Design, FP5) is the establishment of practical relations and mutually advantageous cooperation between universities, research institutes and industrial enterprises of the Central and East Europe countries. Small and Medium Enterprises engaged in area of microelectronic design alongside with research organizations should play the active role in realization of the project. The project should take into account and try to satisfy the needs and requirements of these SMEs.

The basic objectives of the project REASON are the following:

- Raising the level of awareness of industrial problems and the competencies among researchers in Central/Eastern Europe in order to facilitate research co-operation with EU research institutions and industry. Special attention will be paid to methodologies of system-on-a-chip design and test as well as methodologies of analogue and mixed signal IC design for wireless communication applications, networking and multimedia.
- Strengthening of personal and institutional links between academic and industrial partners, both in EU countries and in the countries of Central/Eastern Europe, in order to facilitate formulation of new RTD projects and formation of project consortia.
- Knowledge transfer to the SMEs in Central/Eastern Europe and raising the level of awareness of the IST programme, in order to facilitate participation of SMEs in RTD and other projects of FP5.

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Russian Cultural Heritage Network initiatives in the field of cultural informatization.

K.Nasedkin, M. Sapozhnikova

The problem of preservation, revival and, above all, development of the culture is an issue of unprecedented urgency for Russia, perhaps more so than for any other nation in the world. Our country comprises many unique cultures, all of them with their own roots, traditions, and history. We must take care of all of these. All Russian people are not just bearers, but also cultural keepers. Museums, libraries, theatres, archives, and other culture organizations must be not just an instrument for ceaseless education, but also must contribute to the personality self-identification.

The Russian history always related to endless social convulsions and, certainly, it affects the total process of Russian culture. The best way to keep and to defend from extinction national cultures in modern society is information technology.

When we are going into information-oriented society it's very important does not forget about culture in our society, and to take pains for preservation people's distinctive character. However, preservation people's distinctive character is not only Russian problem, but also the whole world, that is why our organization goes where the action is and collaborates with foreign partners. In Russia, our organization coordinates work of main activities in culture.

The main activities of RCHN are associated with actualization of different information projects. We set before ourselves such major problems, as promoting Russian cultural heritage in Russia and to the world community, organization open communication area for specialists in culture and cultural heritage.

"Cultivate-Russia" EU project - www.Cultivate.ru

> *It's the first Russian cultural project approved by EU*

- This 18-months project launched in January 2002; RCHN is a principal contractor. There were also 11 partners from 6 countries.
- Cultivate-Russia is a network, infrastructure project directed to promulgation of collaboration Russian and European organizations. There were conducted several seminars and round tables, spread information on the whole territory or Russian Federation, produced electronic journals and mailings, functions information web-site, conducted international conference, produced Cds and set regional and international contacts.

The Russian Museums web portal - www.Museum.ru

> *It is the main Russian museums resource centre, which is also used as information and communication centre for public and museum professional area.*

- The web portal, launched in May 1996, has more than 60.000 visitors per month.
- The comprehensive on-line database contains 3.000 museums with their detailed description and images served by the search engine; which is powerful and easy in use. It has about 800 records of an exhaustive guide for any cultural website and a large CD collection with the reviews.
- Cultural News division contains information from all regions of Russia, which is daily updated.
- It has also electronic web-magazines, which are produced weekly. The ones in Russian are "MR-List" and "MR-Prof", and "Russian Culture News" in English.
- The web portal information is disseminated trough the number of partners' websites.
- Information related to the conferences, lectures, reports and laws is updated weekly.
- It constitutes the links to Russian and international museums

Cultural information agency - www.Museum.ru/News/

> *All news related to activities of the cultural sphere. The Russian Federation coverage by the regional network.*

- News, announcements and articles on-line, about 500 topics per month altogether, are collected, adapted and distributed. The regional network covers the whole Russian territory.
- The partnership with most of the news agencies, mass media and web portals in the object of distributing the information. More than 250 weekly issues of six electronic web magazines were produced since 1997. They have about 7000 subscribers.

The whole-Russian Museum Register www.museum.ru/Mus/

A system of databases on museums

- Founded in 1998, census was conducted 3 times: in 1997, 1999 and 2002
- Works with the help of standard form, made for to standardize descriptions of museums and their stuff; the typology of museums and a standard questionnaire 10-CHN were constructed.

- Soros foundation. 2.500 letters with such questionnaires were sent and the answers were processed.
- The software for processing the data was constructed; the data is being constantly corrected and refreshed; the first CD-Rom "VRM-2000" was processed

Museum Professional Server - www.museum.ru/prof/

Informational survey for museum professionals

- Founded in March, 1997
- Contains: Links to Russian and international museum organizations; Conference, seminars and other events announcements; Informational materials; Database and personal web pages of museum professionals; Electronic conference 'Cafe Museum' and the 'Museum board' for discussions; Open discussion list for professionals

The Russian Culture web portal - www.RussianCulture.ru

It is the official Russian Ministry of Culture web portal and the greatest source of Cultural Heritage information.

- The concept proposed by RCHN has gained in the tender of Culture Department of the Russian Federal Government in April 2000. RCHN is responsible for managing the project, including the content, programming and design. Kiryll Nasedkin, the head of RCHN has been appointed the director of the advisory board.
- The pilot version of the web portal, launched in September, 2000, presents substantial quantities of information related to Russian culture and Russian cultural heritage.
- The portal unites different trends of art, such as classic, marginal, pop and applied ones.
- The system of portal databases is constantly enriched and expanded according to the concept.
- The portal contains information related to all aspects of Russian cultural heritage, such as theatre, architecture, literature, art, fine and applied art, music and sculpture.
- It also contains the information about personalities and artefacts, news, websites, web boards, etc.
- The portal has an attractive design and a powerful search engine as well as easy-to-understand navigation system.

The architecture of Russia Server - www.archi.ru

Architectural heritage of Russia

- Started 1997 by Soros foundation; has free access
- All the main architectural memorials are represented
- News, articles, announcements; Links and annotations; Information for professionals

Russian Libraries	**www.libs.ru**
Russian Zoos	**www.zoo.ru**
Museums of Tatarstan	**www.tatar.museum.ru**
Pushkin Fine Art Museum	**www.museum.ru/gmii/**
Russian State Library	**www.rsl.ru**
The Agency of Culture Information	**www.aki-ros.ru**

Now we work at some joint projects in the field of education, e-education and management. We pay special attention to international projects. In the nearest future we are going to participate in two international projects BRICKS and CALIMERA, oriented to the integration culture heritage databases and development modern infrastructure for integration resources and services for culture users all over the world. We plan to make English versions on portals **Russian Museums, Russian Libraries,** and **Russian Culture.**

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Experimental interactive virtual environment with immersing and its using in area of electronic culture

V. Alekseeva, M. Ignatiev, O. Muhina, A.A. Nikitin, A.V.Nikitin, A. Ovodenko, N. Reshetnikova, S. Troshin

1. The purpose of work - creation of a multifunction open set of program and hardware modules on the basis of which it is possible to generate and support various (by criteria - the purposes, the price, quality) the inhabited virtual worlds with the individual and group immersing, allowing users to cooperate with objects and characters of the world and among themselves on the basis of devices of direct access with use of the text, voice, gestures, video etc. in the single or multiuser modes.

2. User interface.

Level of immersion - the three-dimensional audiovisual world with six degrees of freedom and kinestatic sensations - by means of one and multiscreen (mono and stereoscopic) desktop (monitors and glasses), projective (projectors and glasses) and head mounted (personal display) devices, audiosystems and system of imitation of loadings.

Kind of interactivity - movement in the three-dimensional world, interaction with objects, reaction to influences - by means of the keyboard, the mouse, trackball, joysticks, gloves, trackers, microphone, cybernetic bicycle (rudder and pedals).

Modes of operation - one-user; group (one screen - several users); multiuser (geographically distributed users); teamwork.

3. Subsystem of modelling of environment, objects and characters.

Every user in virtual world (VW) can be represented as the character (avatar) which is seen by another users. Application also can include autonomous avatars with given behavior, for example, a guide under the application with opportunities of speech recognition which will be used at the answers to the keywords told by visitors. Interactions " user - user ", " user - autonomous avatar " and " autonomous avatar - autonomous avatar " occurs on the basis of the text, gestures, mimicry, voice etc.

  For example, for the world of bicyclists the model of a bicycle in VW shows rotation of pedals and wheels, and also a rudder of a real bicycle. Users - bicyclists in VW are represented as avatars on a bicycle which show position and moving of every bicyclist in VW, and also orientation and movements of head and movement of hands of the real bicyclist.

4. Features of realization of VW.

The distributed calculations on PC clusters, VRPN standard, methods of synchronization of the connected screens, adaptibility, and also platforms of support VRML/X3D/MPEG4 (toolkit ParallelGraphics) and OpenGL Performer (Virtools solutions).

5. Examples of using.

The developed environment is used at performance of various international and russian projects, some examples are given below.

1). Virtual world of universities of Saint Petersburg – it is carried out by a number of lead universities of Saint Petersburg and it is an experimental platform for development of new technologies of training. Are modelled buildings of universities with adjoining territory, some significant rooms and educational resources. Platform VRML/X3D and a base level of the interface is used. The basic results are exposed on the site virtual.aanet.ru.

2) Studying Russian language as foreign on the basis of technology of VW (together with St. Petersburg State University, the grant of UNESCO). It is addition to the electronic textbook " Russian as foreign ", in the basis of realization of which the principle of the decision of communicative tasks lays. That tasks are characteristic for situations of daily dialogue. Within the framework of the project are selected and modelled some typical situations, actual for foreigners who stay in Russia and demanding understanding of the spatial information and nonverbal behavior. For example, for the lesson " At university " and situation " Excursion on university" the script is following. The user preliminary looks audiovisual roller representing walk around the building of university and in some significant rooms with accompanying historical etc. information. Further variants of check of that he seen and heard are proposed to him :

- Single user - is proposed the three-dimensional model of university with rooms and adjoining territory and the character whom the user may operate(walking, gestures); questions are asked about excursion in the textual form and are duplicated by voice, and the user, operating the character, should show the understanding of the answer to a question;

- Multiuser - each distributed user has the character; a place of a meeting of them is the territory of university; characters may move, exchange gestures, write messages, exchange words (multipoint to multipoint voice communication); among characters there may be a character-teacher (independent or representing the concrete teacher) which asks questions about the history of the university; answers of users are corrected and remembered etc.

3) Electronic travels and competitions with using of cybernetic bicycle (jointly with Zentrum für Kunst und Medientechnologie, Karlsruhe, Germany and Center for Interactive Cinema Research, University of New South Wales, Sydney, Australia).

Scene - three-dimensional models of SPbSU and SPbSUAI with rooms and adjoining territory. Users sit on cybernetic bicycles, immersing is carried out through the HMD and headphones, and also due to system of imitation of loading (kinestatics), and interaction - by means of trackball (later - a glove), position tracker, microphone.

Possible variants of using:

- single user – The user sitting on the cybernetic bicycle, operates moving of the avatar-bicyclist in the scene which is used for cognitive walk or competition similarly to " to race fleet for a hare "; at the scene there may be the independent character who is carrying out a role of the guide with whom the user may exchange words;

- multiuser - Every distributed user on the bicycle is represented by the avatar-bicyclist; a place of a meeting of them is the territory of one of universities; avatars-bicyclists may move, exchange gestures, exchange words (multipoint to multipoint voice communication); among characters there may be a character - guide or the sports judge (independent or representing the concrete user); cognitive joint trips or sports competitions etc. may be organized.

4) Cybernetic bicycle for research of neurophysiology and psychology of the person (jointly with Institute of evolutionary physiology and biochemistry of Russian Academy of Science and Human Institute of Russian Academy of Science), including with the purpose of a medical substantiation of the human-machine interface such as " virtual world ".

5) Another projects in the following areas is briefly considered in areas of education, medicine, entertainment, sports, culture and art.

6. Some conclusions.

Using of technology of the VW provides:
- complete perception of an object, including and due to the three-dimensional organization and visualization of the data;
- direct formation of experience;
- active use sensory-motor characteristics of the person.

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Overview of IST e-culture projects
S.Smagin

Framework programs FP5 and FP6 and their IST Priority pay a great attention to culture in information society. Totally there are more that 60 project in IST priority dealing with culture issues.

The presentations surveys such e-culture IST projects as ECULTURENET, OPENHERITAGE, TOURBOT, ETB, COVAX, ARTISTE, VALHALLA, CRISATEL, MATAHARI, VIRMUS, ARCHEOGUIDE and others.

Sergei Smagin, born 28 November, 1948, in Moscow. Graduated from Moscow Lomonosov State University (MSU) in 1971. PhD. in mathematics from MSU in 1974. Associate professor for applied mathematics since 1979. In 1974-1988 associate professor of applied mathematics in Moscow University for Civil Engineering. In 1988-1991, vice-director of Research Institute for Economics, Management and Informatics. Director of Russian-Dutch joint venture company Nicotech Ltd. from 1991 up and until 1999. Manager of IST projhect TELESOL. Author of more than 60 scientific papers and training courses in pure and applied mathematics, numerical methods, computer science, telematics and related issues, scientific editor of several books.

Results of WISTCIS project implementation in Ukraine

M. Zgurovsky, A. Novikov

National Technical University of Ukraine "Kiev Polytechnic Institute" (NTUU "KPI") was one of active participants of the STACCIS project (1996-1999). Later on our institute was selected as a focal organization of WISTCIS project in Ukraine and the place for the WISTCIS project Kick-off Conference "Teleworking in Research, Medicine and Business" which was organized in Kiev, Ukraine, on April, 19-21, 2001.

The total number of participants of the Kick-off conference - 164: EU countries - 10; CIS countries - 30; Asian countries - 5; Ukraine – 119. Number of contributions - 60, including: 33 presentations at plenary sessions, 22 poster presentations, 2 training courses delivered in 5 lectures, 3 lectures and on-line demonstration presented at seminars.

Presentation of the key results of the WISTCIS project in Ukraine was carried out by the Ukrainian WISTCIS Information Dissemination Centre (Ukrainian WISTCIS IDC).

The audience of the Ukrainian WISTCIS IDC consists of hundreds of university professors, thousands of students and postgraduate students, scientists and engineers in applied mathematics, computer sciences, electronics and telecommunications, service providers and database holders, telematics users and developers. The Ukrainian WISTCIS IDC uses the infrastructure of the National Technical University of Ukraine "KPI": scientific library, computer laboratories, conference hall, etc. The Ukrainian WISTCIS IDC has a great potential. The primary activity of the Ukrainian WISTCIS IDC is its Web-visibility function that consists in development and permanent running of the Web-site http://wistcis.ntu-kpi.kiev.ua.

The results of the activity of WISTCIS project in Ukraine in dissemination of the innovative information technologies and products result in further EU-CIS cooperation with mutual benefits, growing interest of community of CIS countries in European products, development of the market of such products in CIS. This project plays an important role in coordinating efforts of the CIS countries to develop the information society. The participants estimate highly the results of the WISTCIS project and consider it as successful.

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"Progrès pour l'Homme, conséquence de l'ouverture du marché des télécommunications "
X. de Préville

1. Introduction
2. Histoire des Télécommunications en France

Evolution d'une Administration d'Etat en société D'Etat pour aboutir à l'ouverture du Marché et à la Concurrence.

Résistance de l'ancien monopole, Libéralisation lente rendue possible grâce à l'Autorité de Tutelle et à la Communauté Européenne.

3. Ouverture du Marché, concurrence acharnée, offre limitée à la voix, prédominance des opérateurs
4. Apparition du Data, convergence avec l'informatique ; émergence des services,

apparition d'offres calquées sur les besoins des utilisateurs, parfois selon les profils professionnels ou les branches d'activités.

Apparition sur le devant de la scène d'entreprises de services, recul des opérateurs

Conclusion

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Formation : 1976 : Baccalauréat Section D (Biologie, Sciences Naturelles), 1981 : IPAG – Ecole de Commerce, spécialisation Gestion des Ressources Humaines, **Activités Professionnelles** : En 1998 : Création de la Société Discartel dont l'objet est la distribution de services de Télécommunications, **De 1986 - 1998 :** Responsable des Ressources Humaines du Groupe Continental
Le Groupe Continental était un conglomérat de sociétés de services basées en Belgique ou en France dans des activités diverses (crédit, logement, gestion d'entreprises …)
De 1981 à 1986 : Aérospatiale, Division Hélicoptère
Cadre Ressources Humaines

UNIDO's information and ICT support for SMEs
H.Pruim

The rapid advances in information and communication technologies (ICTs) have far-reaching effects on both government and business operations. Small and Medium Enterprises (SMEs) need to have access to adequate information to enhance productivity and facilitate market access. However, in most developing countries, the SME sector is suffering from inadequacies in the provision of business information, which is only available from stand-alone institutions, often slow and cumbersome to access, limited in scope and not provided in an integrated manner. Moreover, access to information is insufficient; SMEs need tailor-made information solutions, i.e. business information services that assess, verify and apply information to a specific business problem.

In order to respond to the specific needs of SMEs, the Business Information Services programme of UNIDO creates value added by bringing together information from different sources and transforming that information into solutions, including ICT and e-business support, in order to enable the integration of SMEs in national and global value chains. As called for in the UN Millennium Declaration, the programme involves the private sector in partnerships for development.

Based on its global contacts, UNIDO has developed a methodology for establishing an integrated business information solutions network
(BISnet) that link all relevant national and international information sources into a "One-Stop-Shop" (OSS). The OSS operates on a demand-driven and commercial basis, ensuring SMEs' trust and support through a strong local ownership of public and private sector business partners. Commercial operations also ensure sustainability of the operation of the OSS.

The process of establishing an OSS follows four sequential steps, which can be undertaken independently: (1) an SME needs assessment to ascertain the information and e-business gaps and requirements, (2) the development of a commercial business plan, (3) the establishment of a commercially operating OSS and (4) rural extensions of the OSS (business telecentres) to enhance the national SME information support infrastructure.

Drs. Pruim is a Chief of Business Partnerships and Information Services Unit of SME branch of UNIDO. He is directly responsible for the development and formulation of technical cooperation projects designed to provide information and e-business support services to SMEs in developing countries and economies in transition. Drs. H. Pruim has more than 23 years of experience with UNIDO of which more than 10 years in the area of information networking. Mr. Pruim and his Unit are involved in cooperation with European projects of EC for several years. In particular, he was involved in preparation and running of TELESOL IST project from its first moment; at present he is TELESOL IST project coordinator at UNIDO.

Legal aspects of Information Society: experience in the frame of IST projects
M.V. Pérez Asinari

"Trust and confidence" and "sustainable grouth" need a legal framework to be achieved, they are key issues for the development of networked businesses and governments, for instance, where legal certainty has to prevail.

Policy questions and legal issues concerning the Information Society have been addressed by the European Union in several European Councils and policy documents. Lack of clear and appropriate regulation may stop the evolution of Information and Communication Technologies (ICT) and ultimately of the IS in all its dimensions, generating a negative impact on individuals, industry and governments.

Important legislation on these questions and issues has already been passed, solving problems and fostering the development of a European Internal Market. A number of legal issues have not been solved yet and new questions are emerging every day and will continue to do so. This legal certainty is not only necessary inside the EU but also from an international dimension, as one of the most important factors for cooperation, commerce, etc.

IST projects, as instruments devoted to increase innovation, competitiveness and cooperation have to consider legal issues when necessary. In this presentation, an overview of two experiences of IST projects where research, teaching and support on Information Society law has been provided will be given. The attention will be draw also to other IST projects that can provide key legal tools.

The ECLIP project (Electronic Commerce Legal Issues Platfom): http://www.eclip.org

ECLIP consortium gathers five research centres specialised in information and technology law (University of Namur, University of Oslo, University of the Balearic Islands, University of Muenster, and University of London), each covering part of the European territory. These academic centres have acquired a wide and highly recognised expertise in the field.

The fact that ECLIP II consists of a consortium of Universities is an important factor to meet its objectives since the work undertaken by university research centres guarantees a high level of scientific quality and independence, while staying capable to offer practical/usable tools and advice.

The main objectives of ECLIP II were :

-increase awareness of the regulatory framework in which e-commerce is developing and the legal, extra-legal (such as self-regulation, labelling of websites, etc) and technological (such as PETs privacy Enhancing Technologies, electronic signature, etc) solutions ;

-provide education and information on the regulatory framework of electronic commerce ;

-set up a distance teaching (e-learning) program on the legal issues of e-commerce ;

-help RTD projects to address and integrate early on ethical and legal concerns in the design and development of their e-commerce project/architecture ;

-build practical tools and guidelines to help consideration of legal constrains ;

-iniciate, carry out and stimulate new study on the policy issues of e-commerce ;

-support and stimulate EC policy.

The CTOSE project (Cyber Tools on-line Search for Evidence): http://www.ctose.org

The CTOSE project (integrated by the JRC, Alcatel, Qinetiq, University of St. Andrews, University of Stutgart, and University of Namur) was initiated to develop an architecture, a common set of tools and procedures for an electronic investigation. This standard methodology was deemed to be necessary for investigators, lawyers and judiciary, to have a common understanding about the difficulties of gathering, analysing, securing, storing and presenting electronic based evidence in a court, for instance, after a cybercrime case.

WP1 – what
WP2 – how
WP3 – constraints
WP4 – with what
WP5 – demonstrator
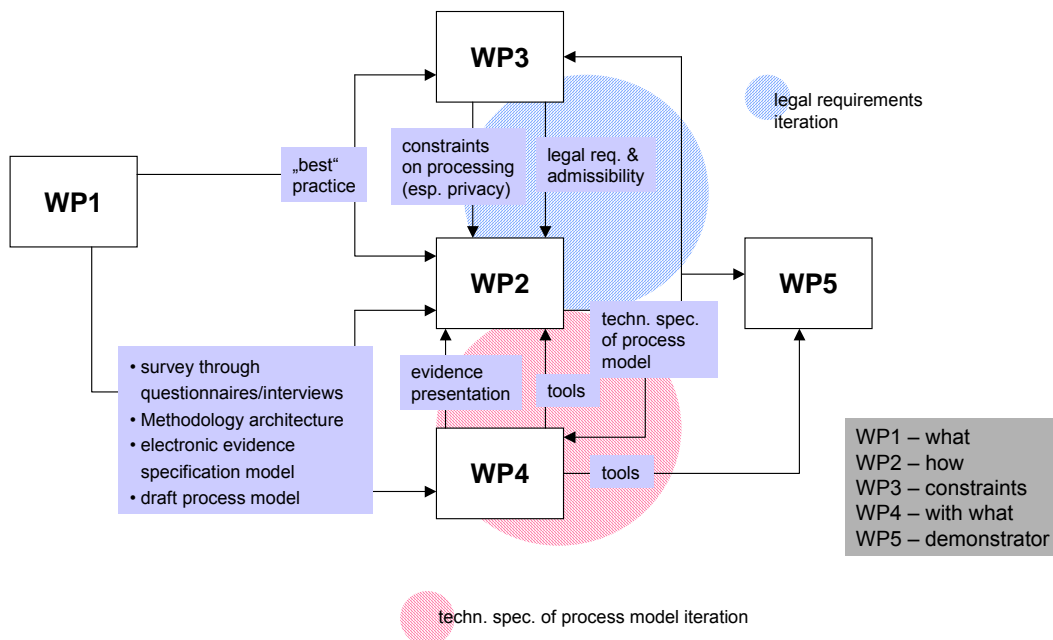
The study of legal issues during this project and the interaction between the different teams (integrated by lawyers, computers scientists, managers, etc.) was necessary because tools have to be legally compliance, otherwise the admissibility or weight of the electronic evidence can be damaged.

María Verónica Pérez Asinari has a Degree in Law. She also holds a Postgraduate in International Commercial Law from the University of Buenos Aires, Argentina, and a Master in Community Law from the University *Complutense* of Madrid, Spain. She has been involved in the IST project ECLIP II at the CRID, co-ordinating the legal assistance to the IST projects, and conducting research in privacy and on-line networks, self-regulation, standard contractual clauses for trans-border data flows, the Safe Harbor Agreement, etc. She participated in the CTOSE project (IST) as a researcher on data protection issues. She is also interested in Private International law, and Integration Processes (EU, Mercosur). She has been *stagiaire* at the European Commission, DG Information Society, Directorate New Working Methods and Electronic Commerce. She is Spanish mother tongue, and speaks English, French and Italian.

Application of new technologies offering information base for geological and geophysical data and geodynamic models of sedimentary basins of the Earth

A.Rodnikov, N.Sergeyeva, L.Zabarinskaya

In the frame of the "Geotraverse" International Project, developed in the Geophysical Center of the Russian Academy of Sciences, fundamental researches on creation of deep cross-sections of the lithosphere through the basic structural elements of the Earth have been carried out. A great deal of various geological and geophysical data sets was collected. These data have been used for the creation of the geology and geophysical database, and the construction of digital models of a deep structure of sedimentary basins of the Earth.

The computer database includes: bathymetric, gravimetric, geothermal, magnetic, geological and seismological data, results of marine geophysical survey, deep sea drilling, deep seismic sounding and tomography investigations.

The constructed models for a deep structure of sedimentary basins contain geophysical field maps, geological and geophysical parameters of the crust and upper mantle; structure of sedimentary layers; schemes of the location of deep faults, rift and paleorift structures, magmatic formations and mud volcanos, mineralization zones and oil and gas fields; distribution of asthenospheric diapirs and zones of partial melting in the upper mantle.

The area of jobs covers the transition zone from the Euroasian continent to the Pacific Ocean with margin seas and the Caspian Sea being the ancient inner sea. Digital lithosphere models include two and three-dimensional interpretations of geological and geophysical constructions as maps, schemes, and sections realized on the basis of GIS-technology.

On the basis of new data an evolutionary sequence of sedimentary basins which formation is connected to stages of rear spreading, asthenospheric diapirism and paleosubduction is constructed. The constructed models can be useful for revealing perspective objects on oil and gas, especially on the big depths and in the basement of sedimentary basins. Digital models and database are accessible on the Internet through WWW on the server of the Geophysical Center of the Russian Academy of Sciences. The created communication resource is the open system, which can be supplemented with the new data and, accordingly, the specified models.

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Alexander Rodnikov received a Ph.D degree in 1970 and State Doctor in geology from the Moscow State University in 1982. He is a Leader of the Geotraverse Project at the Geophysical Center of RAS. His research focuses mainly on geodynamics of active continental margins and deep structure of the sedimentary basins, correlation between the deep processes and geological structures.

Mutual settlements in data communication networks: situation in CIS.
G. Saghyan

The question about mutual settlements between providers is very actual today. Antipathy of approaches to mutual settlements leads to piring wars, which makes great harm to users. Unfortunately, in our days there is no adequate model of mutual settlements and regulating authorities don't pay enough attention o this problem.

Evidently, they think that there is no monopoly in area of data communication. In this presentation author tried to analyze modern situation and to suggest some ways of solving this problem.

On the way to Information Society
Some humanitarian aspects
G. Saghyan

According to the modern definitions in the Information society everybody will have rights for full satisfaction of his informational requirement, and even more – free access to information will enforce the creation of Information society.

But with such definition we can see a problem –the provision of full access is possible for high educated citizens, who have enough educational and intellectual background to use this information for the benefit of the society.

If today all information sources are to be opened, we can provide access to A-bomb technology to any terrorist.

Such situation will push all societies to create a new type of limitation to informational sources – information segregation. In such situation society will kick back less developed societies in the World, while most developed societies will go forward.

Under such circumstances there is a way, which is popular in some developed countries – the creation of users profiles according to their activity in the INTERNET, which is used for advertisement purposes. In combination with genetic information and biometrical passports this way may create new type of access control.

There is no any answer what kind of measures is necessary to initiate. Today it is necessary to be very careful in the field of information access aspects, and important to start discussion around this problem.

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Collaborative browsing technology in WISTCIS project
P. Schulltess

A collaborative browsing service was developed in the context of the WISTCIS project of the European Community. The CoBrow service allows to meet people browsing the web in your vicinity, visit further web sites together and possibly exchange xperience/advice. The talk will describe the technology, including the user agent, the server infrastructure and the techniques used to implement the service. The Presence Awareness Information Base (PAIB) supports both "presentity based presence" and "location based presence". Collaborative Browsing Technology and the associated Presence Awareness Information Base was transported to selected CIS sites and adapted to their language environment.

Future and emerging technologies for virtual presence
P.Schulltess

Our new cluster operating system simplifies the development of distributed applications and uses distributed shared memory as an implicit communication medium. The consistency model for the distributed memory is based on restartable transactions and an optimistic synchronisation scheme. To build OS, device drivers and applications a proprietary Java Compiler was developed. The kernel and its frontend is patterned after the lean systems model pioneered by Niklaus Wirth. A PC-Cluster boots in less than a second (excluding BIOS). Sophisticated garbage collection and recovery mechanisms are implemented.

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Culture of multimedia: risks and opportunities
O. Shlykova

The term multimedia was first mentioned when most people did not pay much attention to computers. At that time multimedia was connected with pictures and rock carvings, hieroglyphs and later with books, advertising, TV-programs and mass media where people used a complex of various means for information presentation.

Without a doubt multimedia is very popular especially today as it is connected with the development of computer technologies which give a new stimulus to the informatisation of society. It is obvious that information processing, transmitting and dissemination with multimedia will exercise influence in professional spheres as well as in everyday life for a long time.

The term "multimedia" is interpreted as a combination of means for creating video effects (including dynamic) together with sound effects under the management of a dialogue, using an interactive software program. It means that multimedia is a combination of special new tools and software programs which allow us to perceive, process and present different kinds of information on a new quality level.

"Multimedia" means "many spheres" (or environments or worlds), but it would be more proper to describe this phenomenon as "polysphere" as it is an integral area presenting different kinds and forms of information.

Being polysemantic, the term "multimedia" can be understood in different ways:
It is a new computer technology type (which could include: multimedia program; a product made on multimedia technology; computer equipment/CD drives; sound- and videocards; suitable computer memory; high resolution monitors), and other parameters.
It is also a special type of computer technology which combines both traditional static visual (text, graphic) and dynamic (speech, music, video, animation, etc.) information.

So in broad meaning "multimedia" is a wide range of information technologies which use different software and hardware in order to influence more effectively the user (who becomes a reader, listener, and viewer at the same time).

But "computer" component ("technical" part) of multimedia is not only one specific characteristic of it. Multimedia possesses a vast and continually developing creative potential allowing to elaborate various productive methods of self-realization. Therefore, more perspective approach for contemplating the nature of multimedia is a cultural approach which considers multimedia as a cultural phenomenon. Multimedia is a part of culture providing values for further spiritual individual enrich.

That understanding of multimedia stimulates some cultural investigations:
1. cultural phenomenon of multimedia: how multimedia influence to our society, mentality, type of thinking, knowledge, styles of behavior and so on,
2. society's reflection on multimedia and how creators, users, researchers evaluate multimedia challenges;
3. digitalization of cultural heritage.

These tendencies contribute to creation of new form of cultural research, in particular applied culturology- cultural anthropology, and emerging (appearing) new type of culture - the electronic one.
Some Universities (Russian among them) have begun to offer multimedia as a teaching means and an academic subject.

The duality of the term "multimedia" explains why universities treat this subject in different ways. Some of them teach it in general as the problems of software in multimedia technologies (theoretical approach), others as mastering of specific programs and producing their own projects and products or getting acquainted with definite CD-ROM products based on multimedia technology (an applied approach).

Moscow State University of Culture and Arts trains specialists in culturology, sociocultural and folk musical creative activities, library and information science, book science, documentary management (more than 30 specialties and 100 specializations). New information technologies are presented in a studying process of each specializations. Multimedia as an academic subject is more deeply studied by students from specialization "Multimedia technologies and Web design", was opened 5 years ago.

"Introduction to multimedia" course includes 3 parts:

1) Multimedia as a cultural phenomenon (where multimedia considered as a means of social cross-cultural communication, a new form of artistic creativity, a type of computer technologies, an e-business tool;

2) Multimedia resources and multimedia technological tools (the main types of information storage devices; software and Hardware for multimedia PC :sound-, image-, video-, smell-, tactile – technologies; creating Web-site: science and art; cclassification of multimedia recourses; legal aspects in creating and using multimedia);

3) Culture as a multimedia object (methodology for digitalization of cultural heritage; Internet-resources in culture; multimedia in continuing education; new types of professions and training of multimedia specialists; international cooperation in multimedia).

Some multimedia initiative of students at University of Culture and Arts will be presented.

The most important part of multimedia education is International cooperation.

Therefore Moscow State University of Culture and Arts, Russia, hereby express our intent to pursue the European Commission's vision of a Network of Excellence in Digital Cultural Heritage. We support the initial outline of research challenges, which have been outlined by the Maastricht McLuhan Institute (MMI) and other partners of the EU project E-Culture Net.

Our University will be glad: 1) to take part in developing European program to train Masters of Information Science (MIS) - "E-Culture" speciality, special programs in E-Culture for continuing education, life long learning and issuing international certificates for courses which are validated in Russia and abroad (The programs for Specialists and Faculty), 2) to co-operate with the E-Culture Net consortium in further defining these research issues and in gradually developing a more comprehensive and integrated research agenda which duly reflects the various cultural, historical and multi-lingual dimensions of Europe, 3) to join future project consortium in FTP6 with the aim to co-operate with other partners in the direction of European Network of Excellence in Digital Culture.

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NetOp School - a powerful tool to enhance computer-based training

A. Smirnov

Trying to instruct students in a networked classroom using conventional teaching tools can be an uphill struggle. Boards and projectors have practical limitations and are simply not suited to subjects where hands-on experience is the best option. Fortunately there's an economical and effective answer at hand – NetOp School.

A powerful new tool to enhance computer-based training NetOp School is a highly acclaimed software solution designed to make computer-based teaching more effective. Using advanced remote-control technology, NetOp School allows teachers to perform online virtually all the tasks they can in a traditional class setting.

With this program you can instruct, monitor and assist students on their computers without moving from yours. What's more, NetOp School grants all students a front-row seat and the chance to gain hands-on experience. The program is currently used in more than 50 countries.

Designed by training professionals, NetOp School is extremely user-friendly and requires no prior experience of computer-based training. And the program's impressive remote-control functionality opens up exciting possibilities for distance learning and virtual classrooms.

Key benefits of NetOp School:

– **Show any screen in real-time to all students**

Give demo – broadcast the teacher's or any student's screen (or only part of thedesktop of a choice) to the whole class. Demo of full screen DOS on Teacher. Students can request microphone, help and keyboard during demo. Auto join demo, monitor, chat, and attention – automatically include students in ongoing activities if joining the class late.

Demonstrate media files – broadcast any MPEG, AVI or QuickTime movies to the class. Zoom to 50%, 200% or full screen on Student and Teacher.

– **Lesson plan**

Dynamic lesson plans – Teachers can combine their standard text presentations with easily preconfigured NetOp School actions like Demonstrate [Media file]. A click on the link and the predefined actions takes place.

Recording and replay – Prepare short lessons by recording specific actions including microphone sound on the teacher's computer. This is done off-line when not in class and is also useful when e.g. entrusting the teaching to a substitute. The recordings can be distributed to students for local replay or can be demonstrated during class.

– **Teachers have better control of the students**

Thumbnail View – view all students' screens as thumbnails. Double-click to initiate a remote control session. Sort the thumbnails alphabetically in ascending or descending order.

Attention – lock screen, keyboard and mouse of student's computers with a single command using a text, a bitmap or a Web page.

Application control – allow/deny use of certain applications on student computers.

Internet connection control – allow/deny certain URL, etc. on student computers.

Record screen activity – Record students' screens during a monitor or remote control session. Useful for later presentation or documentation purposes

Run program – launch documents and programs on student's computers using a predefined list.

Execute command – logoff, shutdown or restart all computers with a single command

– **Online conferencing**

Initiate online written or oral discussion forums. It's possible to hold multiple text discussions and save the text dialogs, and to send instant messages to the entire class in rich text format, including links to websites.

Chat – online discussion forum in written form. Save Chat dialogs.

Audio chat – online discussion forum for the whole class using the sound system of the computer

Marker mode – annotate students' screens during demo or remote control.

– **File Manager**

Powerful split-screen file manager, copy, move, clone, synchronize files

– **Easier for students to request help discretely**

This also goes for virtual classrooms, where the teacher and students are not in the same physical location but connected via a network. In addition, the program is extremely userfriendly and packed with scores of features to help you instruct, monitor and assist students on their PCs without moving from yours.

"*This program definitely saves teacher time and helps students learn*,– said Galina Gracheva, computer training department director of the Seversk State Technology University where NetOp School is being used now. – *The teacher can monitor all the computers at once and can take over a student computer to offer one-on-one help if necessary*."

If you're still equipped with 20th-Century teaching tools in a 21st-Century classroom, perhaps it's time you took a lesson from NetOp School – for the benefit of you and your students.

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Novel Information Technologies in Earthquake Prediction Studies

V. Kossobokov, G. Panza, A. Peresan, L. Romashkova, A. Soloviev

One of the most important components of earthquake prediction studies is the estimation of the performance of prediction methods. Authors of scientific predictions must provide to the potential final users and to the scientific community the possibility to formulate independent judgements of the performance. New information technologies supply proper tools for this purpose, since they permit a real time data exchange, thus allowing for the routine monitoring of seismicity. Moreover they permit a "timely publication" of predictions, which is essential to perform experiments in forward predictions. The web sites of the International Institute of Earthquake Prediction Theory and Mathematical Geophysics and of the Abdus Salam International Centre for Theoretical Physics are distributing reliable information on the algorithms developed at the Institute and the Centre, as well as on to-date intermediate-term middle-range predictions aimed at large catastrophic earthquakes worldwide and in a particular seismic regions (e.g., Italy, California, etc.). The structure and content of these web sites are presented.

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eGovernment tools: overview of some IST and other projects
A. Soloviev

eGovernment tools are aimed at enhancing the efficiency and effectiveness of public sector, reducing bureaucracy, bringing government services faster, easier and closer to the citizen.
Most of them contribute to electronic national, regional and local government by adopting principles of knowledge management and transferring them in the area of online services.

All the e-Government tools are used to bring benefit to a government function.

The presentation focuses on an overview of some EU IST projects (**SmartGov**, **e-Forum** and **eEurope Awards**) and other products devoted to eGovernment development

Presence Awareness Service: collaborative browsing for EU-CIS teamwork
A. Soloviev

In the framework of the project WISTCIS ("New Methods of Working for Information Society Technologies Promotion to Commonwealth of Independent States", project No.: IST-1999-14106) Presence Awareness Service (former title "Virtual Presence System") was applied to an objective of collaborative browsing. It was implemented in collaboration between Centre of Geophysical Data Studies and Telematics Applications (Moscow, Russia), University of Ulm (Germany) and International Association EDNES ("Earth Data Network for Education and Scientific Exchange", Strasbourg, France). In the Web context Presence Awareness allows people to 'see' each other while they are browsing the same Web-page or Web-site. Within the project WISTCIS it eases the getting in touch between people from EU and CIS working in research and education.

The report is also focused on an overview of a multilingual Collaborative Browsing User Agent, which was implemented on the basis of Presence Awareness Service in the framework of the project WISTCIS and which supports Russian and English languages.

The whole system was successfully applied to WISTCIS main Web-site and to several national WISTCIS Web-sites – Belarus, Georgian, Moldavian, Russian and Ukrainian.

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Mr. Anatoly Soloviev, born on June 19, 1979 in Moscow, Russian Federation (Soviet Union at that time). In 2002 graduated from Moscow State Institute of Steel and Alloys, speciality Applied Mathematics. Researcher at CGDS since 1999. Was taking part in system Java-programming and applets/servlets development within joint project between CGDS and NGDC (USA) (1999 - 2001) dedicated to creation of geoinformatics Internet-portal SPIDR-II. Since 2000 takes part in EU IST project WISTCIS *("New Methods of Working for Information Society Technologies Programme Promotion to Commonwealth of Independent States").* Since 2000 is occupied with implementation of fuzzy-logic algorithms for geodynamics analysis research. Degree research was related to this area. At the moment, the work on Ph.D. thesis is being implemented in the same field.

The information system of satellite geodesy and geodynamics data: local version and telematic approach.

P.Medvedev, A.Polyakov, <u>Yu.Tyupkin,</u> M.Zhizhin

The information about deformations of the Earth's crust and velocities of the present Earth's crust motions are of great significance for a wide range of geodynamics and seismology problems. Modern observation systems are based on the techniques of satellite geodesy, which allow us to determine the deformations of the Earth's crust and velocities of its motion with a high degree of accuracy.

The information system for Satellite Geodesy Data Interpretation in Geodynamics and Seismology is reported. The information system includes:

- Database of the modern Earth's crust motion data.
- Database management system based on a GIS approach. - Problem oriented software.

The database contains the results of international networks of GPS, VLBI, SLR and DORIS observations, data of regional and local GPS networks: CORS, REGAL, RGP, SCAR, SIRGAS, and data of temporal observation campaigns in Western Alps (GPS ALPES group), in South and South-East Asia (project GEODYSSEA), in China (CMMN and CMONC stations) and in Central Asia (project IVTAN). All data are obtained from public Internet sources and from publications.

The software provides a user with the following functions:

- To display the spatial distribution of velocities of the present Earth's crust motion obtained by different networks in ITRF 2000 frame;
- To recalculate this distribution in the frame linked with the individual tectonic plate;
- To calculate the velocities of motion of tectonic plates on the basis of NNR-NUVEL-1A model and Actual Kinematics Model;
- To calculate statistical parameters of Earth's crust motion velocities for a selected area;
- To compare the distributions of Earth's crust motion velocities of different areas;
- To calculate the gravity anomalies for selected area.

A local and network versions of the system are designed. The specifics of telematic realization of the system are discussed.

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Fields of present interest:
- Seismology and earthquake prediction;
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Total number of publications: 125

Dynamic processes in geology: Introduction to nonlinear systems

V.Vadkovsky, V.Zakharov

The ideas of nonlinear dynamics penetrate deeply in geological investigations like dykes into the Earth's crust. Irreversibility and irregularity are inherent all geological processes which various structures created. The forms of geological bodies and some other characteristics are self-similarly on different temporal and spatial scales. The fractal dimension is convenient measure for description natural objects and time-series.

Non-prediction and chaotic behavior are the sequels of nonlinear interactions in nature. Only nonlinear dynamic systems gives rise to the fractal objects and phase trajectories.

We have been created the computer version e-textbook "Dynamic processes in geology: an introduction to nonlinear systems" based on our lecture curse for students of Geological Faculty of Moscow Lomonosov State University. To clear understanding of the feature of dynamic systems we included in the textbook author's demonstration executive programs that are reader controlled.

The topics of the textbook are:

Linear systems
Simplest nonlinear system
Lotka-Volterra system
Systems with "dry" friction
Geometry of fractals
Fractals in geology

The e-textbook has dictionary, help to each demonstration program, many pictures and references as usual so INTERNET resources.

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Development of information environment for effective collaboration between small innovation enterprises

V.Vasilyev

Одной из проблем развития инновационной деятельности в Российской Федерации является недостаточное развитие инфраструктуры содействия инновационной деятельности, одной из важнейших составляющих которой является механизм информационной поддержки.

Отсутствует налаженный механизм обмена информацией между потребителями новых знаний и теми, кто их создает. Малые инновационные предприятия не владеют информацией о проводимых исследованиях, что не дает им возможности вносить предложения по приоритетности направлений в данных исследованиях. В свою очередь, исследователи не обладают информацией о тех проблемах, решение которых даст возможность создать новый продукт, востребованный на рынке.

Союз ИТЦ России на своем сайте *http://www.unitc.ru* пытается создать соответствующие механизмы взаимодействия инновационных предприятий и тех научных и промышленных организаций, которые могут участвовать в деле развития инновационной деятельности в Российской Федерации.

Computer Bank of Sign Languages
A. Vosskressenski

Project purpose:

The facilitation of communication between deaf and hearing people by using of sign languages. Implementation of UN Resolution A/RES/48-96 Recommendations (see Part II, Rule 5, paragraph 7).

Project tasks:

- Creation of various national sign languages gesture collections for grammar and other linguistic studies;
- Unification and normalization of sign languages;
- Use of Internet virtual objects for editable sign language messages creation;
- Creation of distant education system for deaf people based on new Internet technologies

Project participants:

- Schools for deaf and hardhearing children and deaf organizations from Moscow, Krasnodar, Yoshkar-Ola and other Russian cities;
- Interested parties and organizations from other countries (supposed from France, Malta, Germany, Belarus, USA and other).

Project is supported by voluntaries from:

- International Lions Club
- World Human Dimension Foundation
- Moscow Children Club "Computer"

Project summary

Available computer sign language training aids use for signs demonstration film-loops or animated images. It is not possible to use these aids to create user defined sign messages and, accordingly, to compare it with the reference samples. That is, the available sign language training aids are not equipped with education control means. More, the simple and easy of access for usual user means for signs fixing (or writing) are absent. Therefore one could say that sign languages have not written form.

The project is proposing the means for signs fixing by special program means. This method open the way to collect signs via Internet, to demonstrate it, to choose most popular sign form of some sentences.

It is proposed to create special server and Internet site to make available the sign languages bank for common access to view and enrich it. The linguistic studies of sign languages are forming essential part of this project.

The project was discussed with linguistics in International conference "Dialogue" (Russia) and with the leading European IT specialists in IZET Innovation Centre (Germany).

The bank creation has following aims:

1) **Scientific:**
    a) The studying of sign languages and it grammars, sign languages unification and normalization;
    b) The studying of sign and text messages semantics to probable use the results in machine translation systems
2) **Educational:**
    a) The development of multimedia training aids for deaf people with sign language support;
    b) The development of distant educational system for deaf people with sign language support;
    c) The development of deaf people practical skills in up-to-date communications
3) **Social:**
    a) The facilitation of communications between different communities of the deaf people and between deaf and hearing people;
    b) The facilitation of communications between hearing teacher and deaf students in beginning stages of new technologies learning

Project implementation phases:

The project is supposed to accomplish in three phases:

- Development of software and methods and procedures of signs bank usage — duration approx. 6 to 9 months;
- Allocation of the bank in the Internet network and it operation testing — duration approx. 3 to 6 months;
- Operation of sign languages bank — expected life is some years as minimum.

The sign languages bank operation in the last phase is suppose to support by incomes from training aids sales, distant education and paid information service.

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WISTCIS training course on FP6
A.Beriozko, E. de Vries

Research activities

FP6 is divided into four main groups of research themes and research activities, which are eligible for funding.

Thematic Areas

Covers those areas where the EU in the medium term intends to become the most competitive and dynamic, knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion.

- Life sciences, genomics and biotechnology for health
- Information society technologies
- Nanotechnologies and nano-sciences, knowledge-based multifunctional materials and new production processes and devices
- Aeronautics and space
- Food quality and safety
- Sustainable development, global change and ecosystems
- Citizens and governance in a knowledge-based society

Cross-cutting research activities

Activities under this heading will complement research within the 7 thematic areas.

- Research for policy support
- New and emerging science and technology (NEST)
- Specific SME activities
- Specific international co-operation activities
- JRC activities

Strengthening the foundations of ERA

To stimulate the coherent development of research and technology policy in Europe by supporting programme co-ordination and joint actions conducted at national and regional level as well as among European organisations. Activities may be implemented in any scientific and technological area.

- Co-ordination of research activities
- Development of research/innovation policies

Structuring the ERA

The main aim is to fight structural weaknesses of European research. By their nature and means of implementation, the activities carried out within this programme are applicable to all fields of research and technology.

- Research and innovation
- Marie Curie Actions - Human resources and mobility
- Research infrastructures
- Science and society

Instruments

The **new instruments** introduced for FP6 are driven by the concepts of the European Research Area (ERA) and are also characterised by the structuring and integrating effects that they will have on European research.

- Integrated Projects (IP)
- Networks of Excellence (NoE)
- Article 169 (for the joint implementation of national programmes)

These **instruments** are **similar to** those in **FP5**.

- Specific Targeted Research Projects (STREP)
- Coordination Actions (CA)
- Specific Support Actions (SSA)
- Specific projects for SMEs
- Specific actions to promote research infrastructures
- Marie Curie actions on mobility, training and excellence recognition

Budget

FP6 has a total budget of 17 500 million Euro that is distributed amongst both RTD and demonstration activities, as well as Nuclear (Euratom) activities.

Participate in FP6

All FP6 activities are implemented through calls for proposals.

Call for proposals:

A legal text calling interested parties to submit proposals for projects. The text defines the necessary specifications to prepare and submit a proposal, i.e., thematic priorities, instruments used, address and other technical modalities for submission, deadlines, etc. Calls are published in the Official Journal of the EU in all Community languages. They are also published on CORDIS, together with detailed guides for proposers, submission forms and an electronic proposal submission tool (EPSS).

FP6 contacts

All the information about FP6 can be found at the Web-site (*http://www.cordis.lu/fp6*).

The European Commission maintains an Infodesk for each research activity covered by the Sixth Framework Programme for the duration of their Calls. Any questions concerning the Call may be directed to the relevant Infodesk (*http://www.cordis.lu/fp6/infodesks.htm*).

Internet and civil society. The Polish case.
P. Wiench

Internet as a means of communication enables people to build social ties which otherwise would be impossible. In the former Eastern Bloc Internet has additional function of integrating society and it may contribute to the emergence of social structures necessary for the transition towards the civil society. One of the most important features of the Internet is that it supports the free flow of ideas and information, independent of the authorities. This feature is essential given the eagerness of the politicians to impose their control on the media. This danger is clearly visible in the countries of the former Eastern Bloc.

Poland, sharing earlier the same socio-economic model as the CIS countries, is an example of importance of the Internet in providing a framework for social integration. Polish network users often seize this opportunity. One of the indicators confirming the interest in this function of the Internet is the popularity of newsgroups, which is similar to the popularity of Relcom newsgroups and Fido BBSes in Russia.

A very significant contribution of the Internet to the construction of the civil society is its role in providing information flow to numerous associations. Internet as a low-cost medium is best suited to many non-profit organizations.

Yet one of the most interesting phenomena is the way how the Internet connectivity itself can be a factor triggering social activity and how the Internet as the medium can create a social movement.

Given the high costs of Internet connectivity, numerous social initiatives emerge which aim at sharing cost of the Internet connection. This results in the emergence of amateur computer networks – so-called clothes-horse networks, as the clothes-horse has always been a gathering point for young people in residential areas composed of big blocks of flats. Several hundred of such networks have registered by now in the portal serving them. Together with the unknown number of unregistered initiatives of this kind, they constitute a significant social movement.

The importance of these initiatives can be appreciated, when seen in the context. Clothes-horse networks emerge in the big residential urban areas where many negative social phenomena like anonymity, distrust, criminality can be seen. This kind of initiatives, attracting young generation, show the potential of the Internet as a medium helping to resolve social problems.

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"Wireless networks"
V.Vishnevsky

Сети беспроводного доступа, позволяющие быстро доставить Интернет-услуги в районы со слаборазвитой инфраструктурой, получили в настоящее время быстрое развитие не только в отдаленных районах. Использование беспроводного доступа в различных подразделениях одной компании, расположенных в разных районах большого мегаполиса, позволяют быстро и эффективно решать проблемы управления крупными производственными и коммерческими структурами.

Telecommunication networks of Russian Academy of Sciences
A.Zhishenko

Эффективное функционирование подразделений и институтов РАН на современном этапе невозможно без полноценного взаимодействия подразделений, как между собой, так и с другими отечественными и зарубежными партнерами. Телекоммуникационная сеть, созданная в РАН на сегодняшний день, представляет собой мощный инструмент, позволяющий решать самые разнообразные научные задачи.

Fall of a glacier Kolka in Northern Ossetia – Alania on 20 September 2002 and observation results of using local seismic network

N.Nevskaya , V.Zaalishvili

In the evening of September 20 2002 fell the glacier Kolka, situated at the foothills of summit Jimaray, or in Ossetian "Jimaray khokh" (khokh - means mountain). The settlement Nizhny Karmadon ceased existing, as well as lives of 135 people, including children.

About a glacier Kolka it is known, that it belongs to so-called "pulsating", i.e. moving glaciers. Is repeatedly marked its movements and some times with tragical consequences. So, in 1902 on July 3 after fall of hanging glacier from summit Jimaray the glacier has fallen and it made glacier move. On July 6 happened another movement of glacier mass, which had killed the relatives searching for dead bodies. The analysis of the given event as the cause of severe consequences conditioned by "suddenness" of fall, has shown following.

Glacier river Kolka, because of creation of the natural weir of out of mass fallen glacier, before other glacier Maily has created lake, which broke through the dam and had rushed downwards as a mud flow. The mass of a glacier Kolka with huge speed rushed downwards …

In 1969 the movement of a glacier Kolka again began. From September 19 till January 10, 1970 tongue of a glacier has advanced on 4625 meters and went down by 900 m. The analysis of events has allowed establishing the period of its pulsation or repeatability of fall once per 67 years. In conclusions of the specially created commission was marked, that the indicated period of its pulsation is characterized for stable climatic conditions, but in conditions of possible increase of a level of precipitation, for example on 10 %, the period will be diminished by 10 years etc. From time of last icefall 30 years have passed. And in 2002 and previous year the level of precipitation obviously has exceeded even by 80 % an average of a statistical level. In other words, we should expect the fall of a glacier this year.

Unfortunately, because of the destruction of USSR many structures had ceased to work. And the observations of glaciers become less regular, they basically were not financed in any way. Moreover, when we say "observation", we imply simply visual inspection once per 5 years. Last time a glacier Kolka was examined in 2000 …

The analysis of placement of ancient settlements demonstrates that all of them are situated in conditions optimal from the point of view of the least vulnerability to natural catastrophes. For example, there is no ancient village on a way of possible movement of a glacier, i.e. in most beautiful Genaldon gorge! Also no house of an ancient part mountain Saniba, which is filled up by water of dammed up glacier lake, is not filled. All houses which appeared at the bottom of lake are new, constructed in last years.

In other words, human factor goes in front. So, it is simple of surprising that for thirty years since last move of a glacier Kolka, the fine highway had been constructed. At the same time the recreation house of the North-Ossetia State University, personal houses of settlement of Nizhny-Karmadon appeared. And all indicated facilities are constructed in Genaldon gorge - natural place of movement of glaciers. And most unexpected, that one of the first facilities was constructed by the geologists! Where glaciers have to go, presenting simplistically a product of a glaciation of summits?

In such conditions it is necessary the creation and every kind development of constant monitoring system of observation in populated and subject to high risk of natural and technogenic catastrophe areas. To such areas, doubtlessly, Northern Caucasus belongs.

Fall of a glacier was registered by a network of seismic stations situated in Republic. The stations were three component seismic receivers with registration device "Alfa Geon". Local network of seismic stations on the territory of republic was created and started functioning in 1998.

In 2001-2002 on the territory of republic 6 seismic observation bases were regularly functioning in: Vladikavkaz, Ardon, Chikola, Zamankul, Fiagdon and Tsey. In addition to above mentioned station, should be taken in account installation and starting activities after repairs of station ROS in Digora. Very necessary station in Karmadon started working with our effort in 8 September 2003. Situation of local network of Alania on the North Caucasus is given below (central circle on the fig.1)
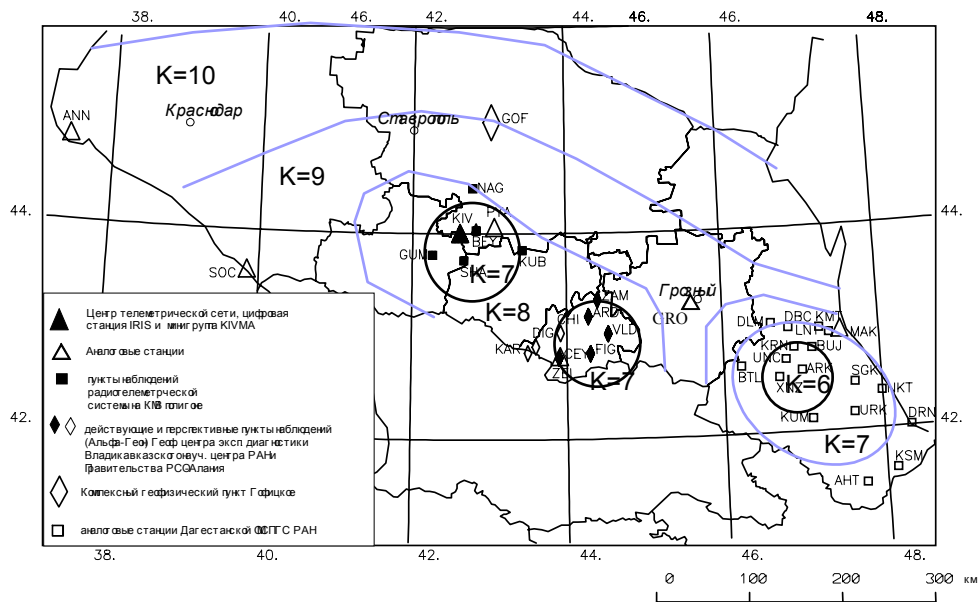
Fig.1. The seismic network of Geophysical Survey Russian Academy of Sciences in Northern Caucasus

At present we processed data of movement records and created spectra of vibrations. As the authors know it such process of pulsar glacier falling was registered and processed at the first time.

At the same time many problems of Northern Caucasus are similar to problems of Southern Caucasus. The organization All Caucasus systems of observation and adjusted information exchange will allow to lower of risk and will increase safety of the population of Caucasus, on the one hand. At the same time the organization All Caucasus observations will make them more reliable, economic. The system failure will be minimal. Spitak and Racha earthquakes are very well remembered. The long hours state structures did not know, where there was an earthquake. So, the aid was late. It is specially important, when often neighbor state or region can help in first hours after catastrophe with own resources much faster, so it is better, than remote central structures.

It undermines civilized relationships between the participants. The special influence will be necessary to give to creating mechanisms, which one will eliminate errors as much as possible, price for which is one life of many people.

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Integration of data sources for space science programs: the case of virtual geophysical network
A.N. Zaitsev

The International Geophysical Year (IGY, 1957-1958) was the global coordination program that leads to develop of space science research in many directions: first Sputnik opens the space era and direct outer space exploration, the combination of ground-based and satellite observations form to the Solar-Terrestrial Physics (STP) and many more. As the recent achievement in the area of STP in Russia we might consider INTERBALL program and CORONAS satellite. The progress in STP based also on the usage of Internet as the data storage with remote on-line access, with processing of data in real-time, with the system for search and exchange of information, and with search engines in Russian language. At nowadays we have a few international programs/proposal in connection of 50th Anniversary of IGY: ILWS, CAWSES, IHY, IPY and recent one eGY – electronic Geophysical Year. It is obvious that such perspective proposals demand to develop of the virtual geophysical network. We have already some roots for such developments – INTERMAGNET program, see http://www.intermagnet.org/, special magnetometers chains are IMAGE, GM-210, MACCS, see http://www.geo.fmi.fi/image/index.html, http://stdb2.stelab.nagoya-u.ac.jp/mm210/, http://space.augsburg.edu/space/MaccsHome.html. On the base of magnetometers networks was developed the AMIE project – the real-time Assimilative Mapping of Ionosphere Electrodynamics, see http://amie.ngdc.noaa.gov/current.html. Another powerful tool for magnetospheric and ionospheric research is SuperDARN project, An International Radar Network for Studying the Earth's Upper Atmosphere, Ionosphere, and Connection into Space, see http://superdarn.jhuapl.edu/index.html. In addition to the projects above we can refer the imaging/scanning riometers, see http://www.polar.umd.edu, HAARP project, see http://www.haarp.alaska.edu/, digital sounders, see http://ulcar.uml.edu/, and many other experimental sites which based on the usage of sensors and Internet technologies. Such tools will serve as the scientific and the applicable aims, so there are developments which play the crucial role for construction of virtual geophysical network. As we display above many countries have the national projects, which might be considered as the starting point for virtual geophysical network. Now we have academic program no.16 "Solar Wind", see http://solarwind.cosmos.ru/, coordinating program for solar activity studies chaired by IZMIRAN, and a proposal of academician G.Zherebtsov for Space Weather service. Regarding to the scientific scene in Russia we expect that after governmental approval of the new international programs as ILWS, CAWSES, IHY/IPY etc., Russian scientist will joint to the world community into development of the virtual geophysical network. From information presented above we strongly advocate in favor to develop the virtual geophysical network as the main stone for further international space science programs. The funding problems might be solved by combination of national and international sources as we have experience before, see CRDF, ISTC, INTAS and other calls.

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A.Zaitsev was born in Leningrad, Russia at 1940. He graduate Leningrad University at 1963 and since than joined to IZMIRAN where conduct studies of the geomagnetic disturbances and solar-terrestrial physics phenomena. For period of 40 years of professional activity he publish more than 100 papers in the leading scientific magazines. Now he continue works as an expert in the field of space physics, geomagnetic storms studies, and informatics including satellite communications. He also has experience as the free lance writer and educator. Alexander Zaitsev get some professional associations and honors: member of International Association of Geomagnetism and Aeronomy (IAGA), member of American Geophysical Union (AGU), etc.

Security and trust in electronic communication
I. Zatsman

Достаточно часто проблема электронного взаимодействия между людьми позиционируется, в первую очередь, как техническая. Однако при переходе к информационному обществу, в котором отдельные виды информационных и цифровых ресурсов становятся объектами права и правового регулирования, технические аспекты отходят на второй план. Это является следствием того, что они проработаны более детально, чем социальные и правовые аспекты.

Поэтому в последнее десятилетие в исследованиях проблемы электронного взаимодействия с использованием компьютерных систем и сетей стало больше внимания уделяться ее социальным и правовым аспектам. Например, одна из последних работ в этой области посвящена исследованию вопросов подлинности бумажных и электронных документов. Активизация исследований также связана с тем, что существенно изменилась сфера применимости традиционных терминов, используемых для описания этой проблемы.

Space Physics Interactive Data Resource – SPIDR

A. Burtsev, E. Kihn, M. Zhizhin

The Space Physics Interactive Data Resource (SPIDR) is a distributed network of synchronous databases and application servers designed to allow a modeling and prediction customer to intelligently access and manage historical space physics data for integration with virtual environment models and real-time space weather forecasts. Eliminating the network bottlenecks associated with transcontinental links, the distributed system architecture is a key factor for low latency in multimedia data visualization and fast data delivery.

The SPIDR is a set of 100% Java platform independent middle-ware servers accessed via World Wide Web. Each server resides at a parallel computer cluster and provides fuzzy logic based searching on a relational database of space weather parameters. The system is designed to allow the user to specify desired spatial, temporal, and parameter conditions in fuzzy linguistic and/or numeric terms and to receive a ranked list of events best matching the desired conditions in the historical archive. Once discovered, the client can request dynamical temporal and spatial visualization using a set of communicating Java applets, browse the archive of Sun and Earth satellite images, and request delivery of the data formatted for inclusion in model runs. Each SPIDR server has a database management interface, which allows data updates performed either by a local user or by another SPIDR server from the Net. The servers communicate to each other for scheduled mirroring of the data and software.

Algorithmic and programming patterns developed and utilized in SPIDR are general enough to be used in other scientific data mining and visualization web applications.

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