

International cooperation in ICT under the UN support

One of the UN global targets is to make available the equal benefits of new technologies – especially information and communications technologies to all UN members. It concerns developing countries and countries, affected by political or economical transformation.

Economical and technological problems in Ukraine could be overcome by attraction of foreign experience and experts exchange. For decision of actual tasks it is necessary to use modern technologies and standards. So the main task of UN is to promote international cooperation in the field of ICT between Ukraine and foreign countries and to coordinate collaboration between them. Foreign partners are interested in Ukraine as a great potential trade market. Ukraine can provide nearby 45 million potential users of products, technologies and services. Absence of the competition in the market creates favorable conditions for promotion of the goods and services.

The statistics shows that only small part of Ukrainians is involved in ICT. Considering overall good education of Ukrainians, their involving in ICT sphere can give a plenty of qualified employees. So cooperation would be fruitful for all participants. The experience of a number of successful projects under the UN support shows that participation of the United Nations in the international projects will be the guarantee of their successful execution.

Ukraine IT status

Ukraine hold the leading positions in Soviet Union in technical and computer branches. The Ukrainian scientists have made set of fundamental discovers. The theory of digital automation and computer architecture has been developed in the Institute of Cybernetics by Victor Glushkov. In the same place in January, 1951 the first computer in the Europe has been designed. Ukraine has excellent educational system oriented on fundamental disciplines.

As is common in many countries, Ukraine's information infrastructure is more developed in urban areas than in rural locations. The majority of the urban population has access to both fixed landline and wireless telephones.

Fixed-base telephony is regulated and 80% of subscribers use the services of Ukrtelecom for domestic and long distance calls. The local loop is subject almost entirely to the monopoly of Ukrtelecom.

The largely unregulated Internet services are well developed, with over 300 ISPs and some 500,000 active use TS. A range of access technologies is available, from fast dial-up to leased lines and xDSL. Even in small towns, speeds of 33K bps are relatively reliable.

Cellular

Cellular communications development in Ukraine began in 1992, with the launch of the country's first operator, Ukrainian Mobile Communications (UMC). Characteristically, first- and second-generation local cellular network development has involved the completion of national networks by separate operators, and by a gradual integration with each other and with other mobile communications networks, in particular, satellite mobile communications. The market experienced a boom in 1999, which coincided with highly unsatisfied demand for fixed-base telephony. Today the amount of mobile users is 32,8 million. That is 70% of Ukraine population.

Other Wireless Services

Mobile operators offer a wide range of additional services to their subscribers. The most popular among them include; SMS, MMS, WAP, mobile office, voice mail, roaming with the Globalstar satellite system, data transmission services, Internet access, last-mile, reference service on SMS use, and more.

The biggest Ukrainian mobile operators:

- **UMC** (www.umc.com.ua)
- **Kyivstar** (www.kvivstar.net)
- **DCC** (<http://www.dcc-ua.com>)

For today 8,5 million inhabitants of Ukraine with different periodicity use the Internet services, or over 18 % of the population. Granting of Internet services access is provided in all regional centers. Total amount of domains of the second level (com.ua) has increased by 4,4 thousand and has reached 187,7 thousand. The volume of the information resources created in Ukraine dramatically increased, in particular, nearly 50 new web-sites appears daily. The overwhelming majority of Internet users – almost 60 % – is concentrated in greater cities. More than 18 % of all users are located in Kiev and only 10% in countryside.

ICT low regulation has positive achievements of last time. During 2004 – 2005 over 40 laws and certificates in the specified sphere are accepted, in particular: The law of Ukraine "About electronic documents and electronic document circulation", "About the electronic digital signature", "About telecommunication", "About protection of the information in the automated systems". Experts think, Ukraine could reach top-seven of the countries-exporters of ICT services till 2010.

IT policies and their problems

Information society development is one of national priorities of Ukrainian government. Wide introduction of ICT gives a powerful impulse to innovative development, economic, sociopolitical and cultural life of the Ukrainian society.

Basic documents which open wide opportunities of formation and the constructions of an information society were accepted at the second stage of the World Summit on the Information Society in 2005. This Tunisian obligation and the Tunisian program for an information society were approved recently by general Assembly of the United Nations.

The area of communication that is a technological basis of an information society dynamically grows in Ukraine recently. Spectrum of services accessible to the average citizen is extended. The national segment of Internet, quality and amount of communication lines increase intensively. More and more of the Ukrainians use world information resources.

This year over 30 big projects will be carried out under National informatization program. Their purpose is improvement of organizational and legal maintenance of an informational society, development a web-portal of executive governmental structures as basis of creation of information system "Electronic government", use of a hardware-software complex "Directory system of the government of Ukraine". It is planned to create the automated information system "Museum fund of Ukraine" and national system of an electronic information-library resource, and also to execute many other projects.

The State Department of Communication and Informatization has developed the project of National Strategy of information society formation and development. This document defines priorities, principles and mechanisms of national economy competitiveness due to wide usage of ICT in all spheres of life: science, education, public health services, etc.

For a development of ICT the state defines following strategic priorities:

- Wide introduction ICT in traditional areas of economy, government, public health services, average and higher education;
- Introduction of electronic auctions and tenders in state purchases, assistance to e-commerce development;
- Implementation of electronic document circulation system in official bodies with application of the electronic digital signature;
- Stimulation of software development, introduction of new technologies of communication, manufacturing of the hi-tech equipment, digital television and

radio broadcasting, development of national system of a satellite communication, implementation of the digital technologies in ground telephone lines;

- Liberalization of the telecommunication market;
- Performance of European Union requirements and instructions about: real distribution of functions between the legislative and executive bodies in the field of communication,
- Maintenance of financial independence of legislative body in the field of communication from communication operators and executive authority in the field of communication;
- Universal communication services creation and maintenance of an easy approach to them;
- Standardization, unification and certification of public funds and information resources;

Wide usage of the newest ICT will enable to provide transformation of our country to the modern, democratic state with powerful economy, the state in which interests of population are adequately presented and protected. Recently the **National program "ELECTRONIC UKRAINE" 2005 – 2012** is provided in our country. It is planned to provide performance of such program tasks:

- Usage of the newest ICT in spheres of state management, enterprise, science, education, culture, health protection, ecology and other spheres of public life;
- Wide access of scientific institutes and the organizations, higher educational institutions, archives, libraries, museums and others organizations, to information resources of national and global networks;
- Increase of sociopolitical, economic, educational, legal, scientific and technical and other kinds of the Internet information resources in Ukraine;
- Improvement of information-analytical supply of the government structures and institutions of local management;
- Granting information services access to physical and legal persons;
- Free access of physical and legal persons to the information on government activity;
- increase of a level of computer literacy of the population;
- creation of new workplaces;

- creation of nation-wide system of medical telematics (electronic system of public health services).

International cooperation and relationship with Korea

Today knowledge and information easily cross borders. ICT are global and that's why could be one of the basic objects of the international cooperation. Recently Ukraine is a member of a range of international organizations in ICT sphere: Universal Postal Union (UPU), International Telecommunication Union, (ITU), The European Conference of Postal and Telecommunications Administrations, European Telecommunications Standards Institute (ETSI). Membership in these organizations is a result of Ukrainian government course to intensification of international cooperation.

Relations between Ukraine and Korea recently become more active. A number of trading agreements, in particular in spheres of sea trade, a mail service are signed. The republic of Korea made an offer of rocket carriers co-production. The possibility of cosmodrome construction with attraction of Ukrainian experts is studied recently. Finally the development of international relations resulted in simplification of a visa mode between two countries. Ukraine sees in Korea the strategic trading partner. Korea hold sixth place on volumes of import in Ukraine. And biggest part of the Korean products is high-tech products.

Relations of the Ukrainian and Korean companies are basically connected with trading. But Korean technologies and standards are in area of interest of leading Ukrainian companies. Reasons of their lack usage are connected with linguistic problems, and orientation of Ukraine international policy mostly to the Europe, instead of Asia. It concerns standards of mobile communication, the Internet-services and other. However the Korean industrial goods have received a wide circulation. In the Ukrainian market the goods of the Korean concerns are widely presented: Samsung, Lg, Hyundai, Kia, and Daewoo. The Korean goods are reputed inexpensive and technologically advanced. Korean electronics is highly appreciated.

Here are some examples of successful cooperation between Ukraine and Korea.

Korean power consumption equipment for Donetsk

The project addresses one of the biggest problems faced by regional power distribution companies in Ukraine where losses during distribution sometimes reach up to 15%, an extremely high level, analysts said. The pilot project calls for the installation of 477 Automatic Meter Readers (AMR), a piece of equipment that allows the region power office to confirm the power consumption used by each household. The \$800,000 project financed by the Korean government through the Korea International Cooperation Agency (KOICA) is aimed at reducing losses at DonetskOblEnergo as well as to improve quality of power supply. A team of Korean experts has

been conducting tests since late last year seeking to launch the project that is expected to help regional power distributor to cut costs by eliminating some of the losses. Through the pilot project, the Korean experts will review the existing programs for technical loss reduction and prepare a list of recommendations of optimal strategies including effective management system, according to the press release.

Semi-conductor and electronic production for needs of civil and military complexes

Samsung Company and institute of monocrystals in Kharkov arranged the contract about cooperation in creation of semi-conductor and electronic production for needs of civil and military complexes.

Creation of a telemedical network of Kiev

The Ukraine Supreme Rada committee concerning public health services has considered the statement "About ratification of the agreement between the government of Ukraine and the government of Korea about realization of the Kiev telemedical network". The project is directed on an exchange of the medical information between medical establishments, organization of gathering, analysis and transfer of the necessary medical information, etc.

UN efforts in the field of ICT

UN activities in Ukraine in the field of ICT are provided commonly with the forces of UNDP and UNESCO. Since 1990s, UNESCO and UNDP have been strengthening national IT capabilities in Member States in collaboration with international agencies and donors. Across the world, a series of computer centers and IT institutions have been established and reinforced under the UNESCO/UNDP auspices.

Recent successful projects connected with ICT are described below.

Project "Strengthening Educational Capacity of Kyiv National Taras Shevchenko University"

Project objective is to implement the modern Informational and Communication Technologies (ICT) at Kyiv National Taras Shevchenko University for application in the all-Ukrainian system of higher education.

Sustainable development of Ukraine as democratic European state shall require conditions for implementation of Informational and Communication Technologies (ICT) in all spheres of public life. Mainly, it deals with educational and research systems. For solving the issue on the national level, significant capital investments should be made. Unfortunately,

Ukraine cannot cover such expenditures in the nearest future. So, ICT complying with the global state-of-the-art standards should be implemented in individual organizations, which:

- demonstrate large-scale availability to such work;
- have significant potential as to results dissemination and sharing of implementation experience;
- can assure positive outcomes of implementation in the long term.

Kyiv National Taras Shevchenko University meets the above requirements. So, the UNDP Office for Ukraine has selected the University as a national project implementer, because it:

- possesses up-to-date facilities for ICT deployment (well-developed computer network, unique hardware);
- employs the most professional faculty and researchers;
- is the basic educational and methodological center of the Association of Universities of Ukraine;
- has long-established and sound scientific and creative liaisons with many higher educational institutions and R&D centers in the world;
- guarantees that numerous graduates having trained in ICT use, will share their positive experience throughout Ukraine in further work.

Informational and Communication Technologies cover the large range of tools, which assure comprehensive and timely access to reliable knowledge in all aspects of social life. Subject to the Project's purpose, directions having the highest relevance for the higher education system development should be singled out from the whole variety of ICT tools. The Project structure bases on the modular principle. Work in each direction was performed within the specialized sub-sections (modules). Each module has its staff members. Despite of high degree of independence, modules demonstrate logical and functional interrelation. Brief description of each module is listed below.

LIBRARY

Purpose: Computerization of the scientific library of the University

Justification: Library is the core informational source in the system of higher education.

Result: Use of modern ICT in the library will accelerate book turnover; thus, efficiency of library stock utilization will improve.

PUBLISHING-HOUSE

Purpose: Modernization of the publishing house of the University

Justification: Publishing new monographs, manuals, and methodological recommendations is the prerequisite of informational database actualization.

Result: Establishment of the modern publishing center will allow giving printed products to the University and other higher educational institutions of Ukraine.

INTERNET

Purpose: Formation of computer network of the University and assurance of high-speed access to Internet

Justification: Full-scale implementation of ICT is possible when computer networks are available.

Result: Creation of extensive communication network of the University and integration thereof into the international professional networks.

REGIONAL ACADEMY FOR ADVANCED NETWORK ADMINISTRATION AND DESIGN (RAANAD)

Purpose: Establishment of the educational institution for training of specialists in computer and network technologies.

Justification: Rapid development of modern computer technologies requires involvement of the great number of specialists in the sphere.

Result: Regular inflow of high-skilled specialists for operation and development of computer networks.

REGIONAL ACADEMY OF INFORMATION TECHNOLOGIES IN EDUCATION (RAITE)

Purpose: Creation of the modern center for implementation of informational and computer technologies in education.

Justification: ICT role in the system of education is getting stronger.

Result: Creation of the modern center for training and advanced training of specialists in there sphere of up-to-date ICT development, deployment and operation in the educational system.

Partners

- Kiev National Taras Shevchenko University
- UNDP

- UNESCO

As a result of the project students and teachers now widely use ICT tools in learning process. The quality of education in university dramatically increased. Doubtless achievements of the project could be seen everywhere.

Project “Transfer of IT technology to Ukraine”

The project "Transfer of IT technology to Ukraine" is aimed to answer the rapidly growing demand for qualified technology specialists in Ukraine by developing high-quality distance learning programs in computer science. This will be achieved by transferring to Ukraine the Japanese IT technology, and innovative expertise and successful experience acquired by the Polish-Japanese Institute of Information Technology (PJIIT). Trilateral cooperation between Japan, Poland and Ukraine is the basis for implementation of this innovative activity for the region.

Because of the distance-based character, studies over the Internet will make it possible to develop joint high-quality study programs in computer science with universities from Japan, Ukraine and Poland. PJIIT has both the resources, in the form of its didactic and research staff, and necessary experience in running similar projects, to provide e-education to Ukraine in computer science.

The following tasks were targeted:

- Improvement of the management and organization of the distance education sector in Ukraine through innovative solutions and practices.
- Training of Ukrainian professionals in creating and managing distant learning system.
- Organization of e-learning education based on PJIIT’s didactic and scientific staff and resources.
- Establishment, operationalization and support to two pilot e-learning centers in Ukraine.
- Organization and launch of pilot courses for Ukrainian students in computer science by e-learning centers in cooperation with PJIIT.

At present time the assessment study were conducted in Ukraine by Polish and Japanese experts, jointly with Ukrainian counterparts to define project implementation strategy, identify potential partners and beneficiaries in Ukraine, and prepare the annual workplan and implementation schedule. Two Ukrainian universities, one in Kiev and one in Lviv were selected,

from the list of candidates to host the e-learning centers based on the assessment of their professional, organizational and operational capabilities. Training materials were prepared and course for professional staff of the educational centers was conducted. A launch of a pilot course is prepared. Cooperation agreements with two educational centers (MOUs) was signed.

Partners

- Polish-Japanese Institute of Information Technology
- Ministry of Foreign Affairs of Poland
- Japanese International Cooperation Agency
- State Committee on Communication and Informatization of Ukraine
- Ministry of Education of Ukraine
- National Technical University of Ukraine “Kiev Polytechnic Institute”
- Lviv Polytechnic National University

ACCESS-net

In September 2000, UNESCO's conference “ACCESS-net 2000” on the establishment of UNESCO's network called “Association of Computer Centers for Exploiting Sustainable Synergy” (ACCESS-net) in Asia and Eastern Europe was organized by UNESCO in collaboration with the Institute of Scientific and Technical Information of China (ISTIC), which hosted the event in Beijing, China, and a result, the ACCESS-net was created.

Kiev National Taras Shevchenko University joined ACCESS-net as a Ukrainian representative. Professor Yuriy Zharkikh participated in number of ACCESS-net activities.

Cooperation between university and ACCESS-net become closer. One of perspective directions of collaboration is participation UNESCO Institute of Technology which is created by the UNESCO's ACCESS-net Korea Polytechnique University.

UNESCO Institute of Technology.

The goal is to set up an Institute of Technology under the auspice of UNESCO promoting the share of human resources, knowledge, and technological culture between member countries.

It is considered to implement modern e-learning technologies in the institute. System of education would be hybrid online and offline. It should benefit from the existing infra, experience, and network: KPU (Korea Polytechnique Univ.) and ACCESS-net.

Administration centre would be located in Korea to improve systematic cooperation and communication system based on the use of Korean advanced technology infrastructure technology.

Expectations:

- Real international cooperation
- Narrowing digital gap through UNESCO
- Effective manpower training by combining On/Off-line education
- Improved employment situations
- Technology sharing

It is planned to organize “Cyber+Open Institute & e-Learning Forum” in Kiev next year on the base of Kiev National Taras Shevchenko university and Regional Academy of IT in Education (RAITE).

Conclusion

Ukraine and Korea are very similar on many parameters. The history of two countries was hard. Position on geopolitical crossroads, neighborhood of large aggressive countries, struggle against abroad influence, occupation, independence, similarity of mentality of people, all this creates preconditions of successful implementation of Korean experience in modern information technologies and industry in Ukraine.

The intensification of the international cooperation between two countries should become the priority purpose. Possible spheres of the future successful cooperation in ITC:

- Consultations on legislative regulation in ICT sphere
- Creation and modernization of an infrastructure
- Training of experts, e-learning
- Creation e-commerce network

Precise and clear legislation is the basis of any creative activity. Consulting and help from Korean partners in the field of law and legislation would be accepted with gratitude.

Informational infrastructure in Ukraine is in the stage of development. This situation is very suitable for Korean Goods and technologies. Taking to attention high reputation of Korean manufacturers, Ukraine is interested in technological cooperation and trading.

Ukraine has great experience in fundamental science and traditional education, but modern ICT tools are not used widely. Korea has great practice and working projects in e-learning. So, potential collaboration should be successful and fruitful. Kiev National Taras Shevchenko University (KNTSU) has great science potential and infrastructure, talented teachers, specialists skilled in e-learning materials and e-books creation. Participation of KNTSU in

UNESCO Institute of Technology would be a great benefit. Recent joint work with ACCESS-NET demonstrates perspectives of collaboration.

The Ukrainian market of e-trading is developing recently. The competition on market is absent. That means great opportunities for Korean systems of e-trading, goods and services.

Recently several projects are conducted in Ukraine under UN supervision. These successive projects show that coordination, consultation and help in establishing connections from UN is great. UN has wide international relations and a number of qualified consultants, can assist in financial aid and also in solving questions with government structures. Cooperation of Ukrainian, Korean organizations and UN would be successful for all.

APPENDIX

Kyiv National Taras Shevchenko University (hereinafter – “the University” <http://www.univ.kiev.ua>, is one of major higher educational institutions of Ukraine. This classical university having 170-year history is well known in the world. Its graduates work for various organizations in Ukraine and in many respects, form political, social and economic situation in the state. Recognizing the leading role of the University in the system of higher education of Ukraine, the Government finances its operations through an individual line in the State Budget. The University has the status of self-managed organization under direct supervision of the President of Ukraine, and its Rector enjoys the ministerial status. The Rector also presides over the Association of Universities of Ukraine.

Development strategy of the University provides for creation of conditions for adequate training and assurance of the educational level complying with international standards. Modern educational standards imply that students should be aware of informational and communication technologies and be able to apply thereof in various aspects of public life. So, building access to local and global networks was chosen as one of priorities in strengthening educational capacity of the University. To this end, they have wide possibilities. The university employs high-professional faculty and staff members, who are not only aware of recent developments in the academician field, but also perform original researches in the sphere of hardware, electronics, telecommunications, theoretical and applied programming. They share their knowledge with students when holding lectures, workshops, practical trainings. Also, the University pays significant attention to computerization. Its data -processing center coordinates work on internal computer network creation and assures access to Internet.

United Nations Development Program Office for Ukraine (UNDP, <http://www.undp.org>) is the core unit of the United Nations for bringing development into social and economic spheres. Being the UN’s largest multi-institutional tool, the UNDP advocates for stabilization of human potential development. The UNDP is on the ground in 174 countries. Mainly, it focuses on raising living standards of the population, establishment and development of inter-regional and inter-agency cooperation both with in individual states and on the global level, poverty reduction, prevention infectious deceases, assurance of environmental sustainability. Global objects of the UNDP Office for Ukraine for the period until 2015 are set forth in the Millennium Development Goals, ratified by Ukraine at the Millennium Summit in 2000:

- eradication of extreme poverty and hunger;
- achievement of universal primary education;

- promotion of gender equality and empowerment of women;
- reduction of child mortality;
- improvement of maternal health;
- combating HIV/AIDS;
- ensuring environmental sustainability;
- development of global partnership for development.

UNESCO (<http://www.unesco.org>) is the structural unit of the United Nations having its head quarters in Paris. It was established on November 16, 1945. The organization has 67 bureaus and divisions deployed in various countries. As for now, it comprises 188 member states.

Primary goal of the UNESCO is strengthening peace and security by expanding international cooperation in the spheres of education, science and culture for the sake of general respect for justice, law and human rights and fundamental freedoms declared in the UN Charter, in all nations irrespective of race, sex, language or religion. The UNESCO fulfills five basic functions:

- prospective studies - determines, which forms of education, science, culture and communications will be in demand in future;
- knowledge promotion, transference and exchange - mainly, on the basis of R&D studies, training and education;
- regulatory activities - drafting and adoption of international acts and binding recommendations;
- rendering expert assistance to member states for determination of their policies in the sphere of project development and implementation in the form of technical cooperation;
- exchange of specialized data among its member states.

List of potential partners in Ukraine

UNDP	http://www.undp.org.ua
Kiev National Taras Shevchenko University	http://www.univ.kiev.ua
UNESCO	http://www.unesco.org.ua
Ministry of transport and communication	http://www.mintrans.gov.ua
Ministry of science and education	http://www.mon.gov.ua
Ukrtelecom	http://www.ukrtelecom.ua