I-WAYS, Digest of Electronic Commerce Policy and Regulation 27 (2004) 73–91
IOS Press

E-Commerce Developments

National information society strategy of Ukraine

In the last issue of I-Ways (4th Quarter 2003) the role of ICT as the driving force for Information Societies was presented by Heads of State of more than 50 countries as their "common vision" for achieving social and economic development. ICT is far more than a vision for many developing countries. Many have adopted strategies and implementation programs. The presentations by senior officials of developing countries at WSIS demonstrated these strategies to be skillfully designed and comprehensive, receiving top priority attention of governments. An excellent example is The National Information Society Strategy of Ukraine that identifies main directions to strengthening the economy, improvement of the education system, promotion of innovation, expansion of the telecom infrastructure, introduction of e-governance, and building of legal and institutional prerequisites for international cooperation. Ukraine's is but one example of ICT strategies that are well designed and already making impressive achievements. Bangladesh, Qatar, Belarus, Azerbaijan and Iran are among the countries moving ahead with national ICT strategies. The following are major excerpts from the Ukraine national strategy.

Editor

1. Introduction

The National Strategy for Information Society Development in Ukraine is based on the realization that the young Ukrainian state needs a long-term strategy of accelerated social and economic development to bring the living standards of Ukrainian citizens up to the European level. The report prepared by the Working Group "Electronic Ukraine" (see www.e-ukraine.com.ua) with the following expected outcomes:

1. The strategy is directed toward implementation of the way chosen by Ukraine to reform its market economy on the basis of development of innovation processes and formation of an investment and innovation growth model. The main strategic outcome should be a change in factors of economic growth and re-orientation towards those based on increasing local consumer and investment demand, improvement of competitiveness of the national economy and efficiency of the national economic resources. Development of ICT is considered as a tool for implementation of the potential competitive advantages for Ukraine, which has considerable scientific and technological potential and the development of human capital.
2. The expansion of ICT in Ukrainian society, national economy, and the management sphere will facilitate integration of Ukraine in international organizations (particularly WTO) and the European Union. This expansion will also be an additional incentive for involvement of direct foreign investment in Ukraine and facilitate development of contacts by Ukrainian businesses with foreign partners.
3. The effectiveness of implementation of information and communicative technologies development strategy in Ukraine should be evaluated using the indices and criteria applied for the monitoring of the e-Europe program and the corresponding e-Europe+ program for the European Union candidate countries.
4. Extensive development of ICT applications and increase of the business profits based upon them are reasons for increasing investment and information products and services demand from these businesses. As a result, the build-up of the eco-

ISSN 1084-4678/04/$17.00

nomic system, which independently generates incentives for the accelerated development of the ICT sphere should be expected.
5. Effective implementation of modern technological solutions in the business sector and build-up of information services will become an incentive for creation of highly paid employment for native specialists, reduce the outflow of professional specialists abroad and increase the level of income of the population and their purchasing capacity.
6. Growth of the tax base will increase collection at all levels, decrease expenditure requirements for social protection of the unemployed part of the population and individuals with low-income levels.
7. Forming economic and institutional conditions for effective information society development in Ukraine will mean readiness by our country for opportunity for accession to international organizations and influential involvement of the Ukrainian community in the world development process.
8. Ensuring attainment of the UN Millennium Development Objectives (1990–2015) by means of efficient implementation of the strategy.

The consolidated draft National Strategy action plan was presented at the World Summit on the Information Society (WSIS) and available at www.e-ukraine.com.ua. The project is based on several assumptions, in particular that information society development should become the most important component of the long-term social and economic policy of Ukraine and decisive factors of ensuring its geopolitical competitiveness:

1. the purpose of the information society is to be integrated into the comprehensive development of the human being, creation of conditions for his/her spiritual and intellectual enrichment, build-up of the national human capital as a basis for the development of social, economic, humanitarian, cultural, and other aspects of social life in Ukraine; first of all in the interests of improvement of individuals' well being, effectiveness of the economy, and strengthening of the state system,
2. development of the information society in Ukraine should become a basis for its accession to the United Europe, where integration processes are ensured by implementation of the Lisbon Strategy (2000) based on carrying out "e-Europe+" and "e-Europe Action Plan" programs for the candidate countries,
3. constructive use of experiences of developed countries that have achieved world leadership in this field should become a basis for the policy of information society development in Ukraine,
4. recognition of the importance of information in modern civilization is premised on the necessity of extensive integration of Ukraine into the world processes of creation and use of information technologies as a prerequisite for its transformation into a high-tech and competitive nation,
5. It is not sufficient for information society development efforts to deal only with solving problems of transmission, access, processing, and storage of information or information products, and must include the processes of producing information in the form of new knowledge and innovative consumer products,
6. The problem of information society development is first of all connected with intellectualization of work, giving the highest priority to the processes of producing new knowledge, which determine progress in the social and economic development of a country,
7. The setting up and implementation of the Strategy will become the decisive factor for achievement and long-term support of Ukraine's global social and economic competitiveness,
8. The National Strategy of Information Society Development in Ukraine is the document that should become the conceptual basis for the development of the relevant state "Action Plan", which will ensure its practical implementation in Ukraine, and
9. This Strategy should have the status of law.

2. Objectives of the Strategy

1. ensure conditions for progressive social and economic transformation of Ukrainian society by means of involvement of every individual in the active use of information and communication technologies (ICT) in different spheres of vital activities,
2. improve the National Strategy of Information Society Development in compliance with the priority objectives of the Lisbon Declaration in accordance with the initiatives and measures of the e-Europe and e-Europe+ programs,

3. accelerate harmonization of the normative and legal support of information society development in Ukraine with the European legislation in such fields as telecommunication, computerization, software, electronic distribution of documents including the problems of digital signature, consumer protection, etc.,
4. facilitate development of telecommunication networks across Ukraine to provide all public groups with extensive access to the global information resources including high-speed Internet, and involving them in use of these resources in their day-to-day activities,
5. carry out methods for improvement of the investment attractiveness of the Ukrainian ICT market,
6. introduce effective measures for retaining and strengthening the professional personnel potential of the country, to create, support and expand the competitive sectors and industries in Ukraine by means of ICT,
7. initiate programs for increasing the positive consequences and benefits of information society development on a wide social basis: population, small, medium, and large businesses in the process of economic restructuring, public administration, non-government organizations,
8. stimulate extensive introduction of electronic communication facilities and open information access to, from and between the state administrations and businesses, non-governmental organizations, individuals via the Internet network and to create points of general information access aimed at ensuring transparency of the relations between the public and private sectors and the state, as well as between governmental bodies,
9. improve the business and economic environment for stimulating private investments in scientific and technological research and innovation activities, particularly through partnerships between business and science, which will stimulate the development of high technologies,
10. facilitate development of telecommunication networks aimed at providing all schools and universities with access to the high-speed Internet and multimedia resources, which will facilitate adaptation of training courses to new challenges, relevant training of teachers, as well as encouraging partnerships in the private and non-governmental sectors; technologically ensure reform of the educational sphere focused on organization of continuous professional training using ICT,
11. ensure powerful regional development as an object of the information society in Ukraine, and
12. create conditions for involvement and use of financial programs offered by the European Union and other international organizations that support information society projects and development of the regulatory institutions

3. Background Conditions for Strategy Implementation

Development of information and communication technologies (ICT) is one of the most important factors of economic growth in the information society. Therefore, the conditions and dynamics of this field have become the central indicators of competitiveness and development of a country.

The global rankings of Ukraine, according to the competitiveness calculated by the "World Economic Summit": in 2002 Ukraine occupied 77th place according to the general competitiveness index, 72nd place according to the technologies index, 67th place according to the sub-index of ICT development. The fall of Ukraine by nine positions compared to 2001 is a negative trend. This tendency appeared again in the 2003 report.

This occurs, however, under the positive rates of relative growth for Ukraine in the main ICT parameters: Source: The High Tech Navigator Ukraine, 2003.

Telephones: over 10.8 million subscribers; coverage index 22%; total number of telecommunication lines 10,800.

Mobile: 3.7 million subscribers; coverage index is 7.7% (in 2005–2006 it will be 17–20%), 63% growth compared to 2001.

Internet: 2.5 million users, coverage index is 5.2%.

Computer hardware: 650,000 personal computers were sold in 2002, generating revenues of US$ 400 million (growth is forecast the next three years).

IT services: the IT services market has increased by 28% and estimated at $100 million.

Software: the domestic market for licensed software has increased by over 100% during 2002. The scope of sales of licensed software was 10% of the total index and will remain the same in 2003. The growth of offshore software was 21% ($45 million) compared to 17% of the traditional software market.

IT services export market: in 2003, the volume was $70 million. The share of exports in the total scope of IT services is 50%, and will increase to 60% by 2005.

Hence, the annual average growth rates are forecasted within 10–50%. At present the share of IT products (their licenses) in the total scope of IT export does not exceed 10%, but it is expected that by 2005 this index will be increased up to 30–35%.

Ukraine possesses unique personnel resources for the development of the information sector. Annually 50 thousand IT specialists (including mathematicians) graduate from Ukrainian universities. Ukraine occupies fourth place in the world after the USA (194 thousand), India (145 thousand) and Russia (68 thousand) for the number of certified programmers (according to the information of Brain Bench the International Agency). There are all relevant prerequisites in Ukraine to offer intellectual services in the world markets.

The following barriers to information society development in the Ukraine exist at this stage:

1. Insufficient legislative and institutional bases for the promotion of dynamic, independent, often risky business competition,
2. An unfavorable business environment which does not encourage investments for adaptation of advanced technologies in Ukraine,
3. Existing state programs as well as those being designed, are not based on the real situation in the ICT market and are not actually focused on the innovation stage of scientific and technical life cycle of the draft programs,
4. Lack of a full-value complex national program of social and economic development based on the information society development condition on considerable economic losses of the country being in the global field of the knowledge-based economy,
5. The problems of information society development are being solved mostly from the standpoint of departmental interests and this has not actually become a priority issue of the national policies in Ukraine,
6. Insufficient state coordination concerning creation of the elements of information infrastructure, particularly while building the state and corporate departmental information and communication networks, creation of national and departmental information resources, introduction of governmental services, which are based on use of Internet technologies, and implementation of ICTs in the social and economic sphere,
7. Low efficiency of the informational interaction in the system of state authorities through actual slowdown of the ICT implementation process with the low level of financing of the tasks of the National Informatization Program (NIP),
8. The inefficiency of existing information and analytic systems of individual governmental bodies which use few modern computer methods of analysis and forecasting,
9. Slowdown of implementation of modern ICT in the economy, particularly construction, technologies of electronic business, electronic stock exchanges and auctions, electronic depositories, etc.,
10. Insufficient implementation of efficient state policy regarding development of the Ukrainian segment of the Internet, impeding the process of extensive use by the population, business, and governmental structures of the country,
11. The state policy of undertaking protectionist measures regarding support of information hardware and software production and introduction of ICT in all fields has not been created, which would considerably improve the export potential of the country,
12. The existing practice of financing informatization projects beyond the National Informatization Program resulted in the harmful decentralization of the informatization process in the state, duplication of work, and lost efficiency of utilization of the national funds, and
13. The role of the State Communication Committee as the adopting organization for the National Informatization Program has been unjustifiably decreased (financing of the informatization projects beyond the National Informatization Program is ten-fold higher), which resulted in practical suspension of the:
    - implementation of the National Informatization Program in accordance with the NIP legislation,
    - the State Communication Committee plays the role of the methodological and organizational center of informatization of the country,
    - the involvement of the scientific community, business, and public organizations in the processes of informatization and building of the information society
14. The draft Law of Ukraine “On the State Program for Electronic Ukraine” (the State Committee on Communication and Informatization of Ukraine), which is envisaged to be approved by the Verkhovna Rada (the Parliament) of Ukraine, does not contain concrete measures and effective scopes of financing which would ensure imple-

mentation of the social and economic mission of the information society. The draft is based on budget financing and does not envisage an integrated approach to the creation of the economic conditions favorable for the implementation of the tasks set therein. Implementation of the program is only possible through the consolidated efforts of the state, business and public sector.

15. The policy of regional informatization remains incomplete, which results in:
    - uncertainty of the cycle of problems and tasks, which should be solved at the national of regional levels,
    - the subsequent breakdown of informatization levels of separate individual regions,
    - slowdown of the pace of regional informatization, and
    - increase in the gross expenses for informatization as a whole in the state, which is determined by duplicating the informatization work for the needs of the state administrations.
16. Slow introduction of new training methods based on use of ICT may result in:
    - subsequent deepening of inequality in teaching students in urban and rural areas,
    - decrease in competitiveness of the national specialists in accordance with the requirements of modern market, and
    - a general society gap from the point of view of acceptance and use of ICT.
17. Slowdown of the processes of informatization of libraries can result in:
    - subsequent deepening of inequality in access to various informational resources for the urban and rural populations,
    - subsequent negligible identification of Ukraine in cyberspace, and
    - certain restriction of availability of Ukrainian information resources in cyberspace.

Thus, the general conditions for implementation and use of ICT in all fields of human life, society, economy, and state on a global scale are not sufficient for Ukraine to occupy an adequate place considering its potential.

4. Main Directions of the Strategy

To solve current problems of industry development, ways of improving the current status are summarized in this section. The strategy should start with build-up of the mass awareness of the citizens regarding priority and prestige of their behavior focused on mastering of the newest knowledge and search for the ways and methods of their effective use in the scientific and technological innovations. In this context it is also very important to promote the acceptability and readiness for constant changes. Implementation of this strategy should be carried out on a broad social basis involving all public groups for participation in the development of the information society: public and private business sectors, education specialists, scientists, innovators, institutions of the public society, mass-media, etc.

The strategy should ensure close and effective cooperation, coordination and balancing of development of the key economic sectors, which determine success of the information society development as well as accelerated creation of modern information infrastructure for extensive access of individuals to modern advances knowledge.

Social and economic integrity and comprehensiveness of the strategy is ensured by the coordinated and balanced development of the following management segments of the governmental policy.

1. Improvement of the economic environment. Creation of economic motivation and an institutional environment for large-scale and effective use of national and global knowledge in all sectors of economy, making entrepreneurship more active, governmental support of the social and economic transformations required at the current stage of the scientific and technical revolution.
2. Develop the educational system. Building a society of highly qualified, mobile, and creative individuals who in the course of their lives can gain advanced knowledge and have extensive access to both state and private financing of innovation activities.
3. Development of the telecommunications infrastructure. Creation of the national information infrastructure, which will ensure rapid increase in competitive telecommunication possibilities for all public groups.
4. Develop a national innovation system. Creation of an effective innovation system and favorable business environment, encouraging innovation and entrepreneurship. The national innovation system includes firms, scientific and research centers, universities, analytical centers, and other organizations that are able assimilate and process information from the continuously expand-

ing "bank of knowledge", make contributions, as well as efficiently use this knowledge for the requirements of their country, for creation of new products, technologies, services, business directions.

5. Development of social capital. Creation of a new cultural environment adequate for the introduction of the policy of information society development. Experience shows that a number of countries have a conservative cultural environment, dominated by historical traditions that are not always favorable for achieving success in the current conditions of information society and international competitiveness. Therefore, some countries lack transformation of their cultural environment that can prove to be a negative factor of solving the tasks of development.
6. Electronic governance. Creation of an electronic governance system will ensure improvement of the quality, efficiency, and transparency of government processes as well as facilitate interaction of the governmental bodies with the citizens, private sector, and themselves.
7. Institutional support. Creation of the normative, legal and institutional prerequisites of information society development is a fundamental task, as this will require coordination among many organizations, as far as from the moment of achieving positive results in this direction consolidated development of all components of information society will commence.

5. Strengthening the Economic Environment

There has been considerable delay of Ukraine in advancing the process of information society build-up and fragmentation of the development of the ICT prevents its natural development into an information society. Development of this sphere requires governmental support in the form of stimulating its growth, diversification, and modernization.

Creation of an environment favorable for building the information society goes far beyond a specialized policy of stimulating individual branches and spheres of ICT. The information economy is based on expanded horizontal interconnection, self-organized processes, and managerial decisions influenced by market information so free branch-to-branch information flows are crucial.

Creation of favorable conditions for the information economy development requires new approaches to the development of financial services, to ensure accumulation and re-distribution of the financial resources for the introduction of effective structural changes. This also requires implementation of a new paradigm of monetary and credit, as well as budget and tax, policies, which should first of all ensure dynamic economic development of the country.

The principal economic strategy envisages that ICT shall not be considered a target of state policy, but should be transformed into the direct interest of consumers, producers and investors by means of:

1. direct measures on the national and regional level, which would facilitate the *increase* of proposal of goods and services in the ICT sphere, improvement of the qualitative characteristics of the national scientific and technical potential, intensification of the process of mastering scientific knowledge and new technologies, comprehensive development of the human potential,
2. encouraging *demand* in the national economy for ICT products, technologies, knowledge, creation of favorable conditions for implementation of innovations into the production activities and private life of the population,
3. encouraging *investments* of the innovative nature by the national economy to increase the proposal of the innovation products, technologies and knowledge (investments directly into the ICT sphere and into the implementation of ICT elements in the traditional branches of economy and life),
4. creation of the conditions for national companies to implement entry strategies in foreign markets, and support constructive competition in the domestic market which will encourage companies to become involved in innovative activities,
5. diversification of the organizational forms of functioning of the national economy, ensuring the cooperation of small, medium and large companies in the field of development, implementation, production and sale of ICT products; development of scientific and production cooperation, industrial and financial integration, and venture business including at the international level; and
6. creation of favorable conditions for attraction of "shadow capital" in the sphere.

The policy instruments to increase ICT investments should be the following:

1. removing enterprise expenditures for fixed asset investments from profit tax taxation (it is possible at the first stage to limit the investments of the innovation enterprises),
2. stimulation of capital investments into the reconstruction, refurbishment, and creation of the infrastructure of ICT production and use.
3. encouragement of commercial banks to grant credits for the investment of projects, which envisage innovation activities in the sphere of ICT,
4. ensuring transparency of and control over the processes of granting tax incentives for innovation activities, assistance in receiving due privileges and deferments, tax holidays for the period of repayment of investment credits by ICT enterprises,
5. legal and methodological support for the foundation of small innovation enterprises, other forms of independent investment of savings, and self-employment of the population, directed towards making investment activities more active and the development of the human capital of the nation, and
6. extensive awareness and propaganda work regarding building-up the ideology of innovation investment as investment in the future of the state, prestige, and economic profitability of ICT development and introduction into economic activities, dissemination of successful experience of the national and foreign companies in this field

Principally important is inclusion of the ICT sphere development in implementation of general strategic priorities of social and economic development of Ukraine. Only in this case privileges and preferences granted in this sphere are accepted as justifiable, and hence can be defended at the highest political level.

An important element of economic policy is tax policy, whose instruments are implementation of privileged taxation of priority innovation activities connected with production and application of ICT:

1. application of privileges in taxation of profit of innovation enterprises in accordance with the current legislation, particularly the "Law On Innovative Activities."
2. exemption of the funds of enterprises from taxation, which are directed to financing of scientific research (equating them with the investments in intellectual capital),
3. setting up taxation privileges for funds of commercial banks, insurance companies, pension funds and other financial institutions, received as a result of investments in innovation enterprises, privileged taxation of profits from insurance of innovation enterprises, and
4. granting privileges in taxation of commercial banks, which are crediting innovation enterprises, first of all on a long-term basis

In view of these Strategic tasks, modification of the criteria of separation of the innovation enterprises is sensible, should be built on the functional principle. It would allow transferring of *technological priorities* which are currently identified by legislation, to a more flexible system of setting up criteria of selection of technologies and innovation projects.

The budget for financing information society development should be improved through the mechanisms for accumulation of a "development budget", which will cover direct state expenditures for the purposes of development, tax privileges of innovation destination, credits granted by the National Bank of Ukraine for support of the long-term innovation crediting, as well as investments of private economic subjects for the purposes of development.

The main institution for the introduction of the "development budget" should be the Ukrainian Bank for Reconstruction and Development (UBRD). Rationalizing the utilization of the budget allocations for the support of innovation activities requires also acceleration of the process of creation of the regional innovation financial and crediting institutions envisaged by the Law "On Innovation Activities".

Improvement of efficiency of budget financing of the scientific and technical sphere requires inventory of scientific and technical programs financed from the budget, termination of programs which are carried out at an improper level or have lost their urgency, conducting scientific and technological audit of the state scientific and research institutions and organizations aiming at a complex evaluation of their intellectual capital, identification of technologies, experience and knowledge, which has commercial capital, focusing them on the tasks of information society development and termination of the state support of the innovations of secondary importance.

Building a system of long-term refinancing of commercial banks, which grant credits for the implementation of innovation projects, should be continued by means of combining this leverage with the complex of institutional instruments to achieve its effectiveness.

Allocating innovation credits more actively which depends on stimulation of the effective demand for credit resources. Commercial banks should be involved in carrying out this task requiring:

1. introducing mechanisms of state insurance of the innovation credits including the credits granted to small enterprises that develop and implement ICT, and whose activities are connected with considerable investment risk,
2. giving state guarantees to the commercial banks which are crediting priority innovation projects, and
3. setting up a lower rate of the compulsory reservation of funds at the National Bank of Ukraine for the commercial banks which are granting long-term privileged credits fro the innovation projects

The provision of the "Law On Innovation Activities" requires priority implementation, including identification of a specially authorized central governmental body on innovation policy and specialized non-banking innovation financial and crediting institutions. The aforementioned institutions should closely cooperate with the UBRD in the introduction of the "development budget". It should be realized that the real stimulating influence of this Law on innovation can start only after creation of such infrastructure.

The necessity to attract foreign investments for programs and projects facilitating formation of the information society in Ukraine requires further development of organizational mechanism of this attraction. For this purpose the mechanisms of international transfer of technologies require improvements. Also comprehensive support for industrial and financial groups is required for direction of their resources into the implementation of long-term investment projects in the sphere of information society.

6. Development of the Educational Systems

Education acquires a new, principal importance in the information society, but the changes happening therein are not sufficiently effective. This jeopardizes the quality of education compared to the European standards, enlarging the gap of Ukraine in the development of high technologies, first of all in ICT, as well as decreasing of the competitiveness of the citizens in the labor market, the transformation of the educational systems should:

1. be based on a strategic vision of the perspectives of ICT development for the educational system in the near and remote future, be systemic and complex by nature,
2. be preventive: based not only on the current conditions of development of economic, political, and social spheres of the society, but also on the conditions the society desires and is able to achieve,
3. take place with active participation of the state, entrepreneurial and public sectors of society, and international organizations, where the main and coordinative role should be played by the state institutions thus ensuring relevant legislative, organizational, and material support,
4. use positive experiences of transformation by the educational systems of other countries provided that the best traditions and achievements of the national educational system are preserved,
5. be based on generally accepted international practices, (first of all European) standards, and information technologies of electronic education (e-Education) and education quality standards,
6. be closely connected with the tendencies of development and achievements in fundamental, applied and pedagogical sciences, and
7. be open and understandable for the representatives of all public groups

The transformation should be rapid but evolutionary. Implementation of new educational models should be based on (primarily short-term) pilot projects and based on the experience of successful implementation of similar projects.

Correlation of the strategies and producing tactical goals of education development should take place based on the result of permanent (including social) monitoring of the transformation of the educational system in Ukraine and other world (European) countries.

It should be mentioned that the development of large-scale process of transformation of education in Ukraine from the point of view of the necessity of creation of the information society will be based not on an empty place. There should be a step-by-step process realizing the importance of these actions and the present condition of education systems:

1. A number of the state programs relating to implementation of ICT in the educational sphere have been adopted,
2. Public organizations that facilitate use of ICT in the educational field are being founded,
3. The level of interaction between the ICT-business and education is increased,
4. Long-term programs of joint actions of successful ICT-companies and the Ministry of Education and Science of Ukraine (MESU) are being introduced,

5. The national information and communication and education and scientific network "URAN" has been created and developed, and is an important constituent of the Ukrainian national scientific and education network,
6. The production and operation of automated system of education management "Osvita" (Education) has been created,
7. ICTs have been introduced in the educational establishments of all levels including rural schools,
8. Distance learning is being introduced in the systems of corporate training and retraining of personnel, particularly civil servants and banking employees,
9. A network of distance learning is being created: centers and virtual laboratories of distance learning are being commissioned at universities, and
10. The elements of credit and module system as a basis for traditional and distance learning technologies are being introduced.

The principles of transformation of the education system into an information society involve a number of elements:

1. development and introduction of programs to retrain staff on the issues of use of ICT in their professional activities and the relevant certification of civil servants, all administrative and teacher training personnel of the educational sector, as well as ensuring mass improvement of the level of computer literacy of all population based,
2. ensuring priority of training of IT specialists by means of extensive involvement of the leading specialists of IT companies in the learning process, early specialization of students in ICT directions and their compulsory participation in the production and scientific and research activities of these companies with their subsequent employment therein,
3. creation and development of distance learning systems and ensuring effective introduction and use of the ICT at all educational levels of all forms of education based thereon,
4. creation and development of unified scientific and educational space, which will be based on unification of different multipurpose information and communication systems at the national level in this field, particularly state automated systems of distance management in the field of education, national scientific and educational portal, systems of distance learning, national communicative educational and scientific network, in the system of independent testing centers, shared electronic information resources, etc, and
5. development of a system of continuous open education based on the existing educational system thus ensuring the transition of the society from education for its entire life to education throughout its entire life, and integration of Ukraine in the European and world scientific and educational arena.

The above directions should form the basis of an integrated state program of transforming the educational sphere and concrete targeted projects, to be implemented through:

1. identification of the mechanism of multi-channel financing of each of the projects involving the funds of state, public, and entrepreneurial sectors of the Ukrainian society, as well as international organizations,
2. reorganization of subdivisions, centers and institutes of the MESU, which should ensure implementation of the ICT in the education sphere,
3. coordination of participation of the three sectors of society and international organizations in carrying out specific projects and the Program as a whole,
4. coordination of organizational and managerial decisions regarding fulfillment of the Program per separate directions (projects)
5. use of unified infrastructure for implementation of different projects of the Program (communication networks dedicated to education and science, as well as centers connected to the communicative network, education and science web-portal),
6. development of complex solutions concerning methodological, program, hardware, communications and personnel for each of the projects as a constituent of the whole Program, which will be based on unified approaches and generally accepted in global practice standards,
7. continuous monitoring of the effectiveness of ICT implementation in the educational field and use of the results for correction of strategic and tactical tasks,
8. development of scientific direction at the turn of the psychological and pedagogical and technical sciences in the field of ICT which will ensure effective return influence of ICT on the educational field and, accordingly, education on development of ICT,

Centrality of ICT in Bangladesh Development

The Government of Bangladesh has adopted ICT as a keystone of its chosen policy for accelerating growth and alleviation of poverty in the country. The intersection between policy-making and ICT takes place at the highest level, there being a specialized Ministry of Science, and also a high-powered National ICT Task Force chaired by the Honorable Prime Minister herself.

This Policy aims at building an ICT-driven nation comprising of knowledge-based society by the year 2006. In view of this, a countrywide ICT-infrastructure will be developed to ensure access to information by every citizen to facilitate empowerment of people and enhance democratic values and norms for sustainable economic development by using the infrastructure for human resources development, governance, e-commerce, banking, public utility services and all sorts of on-line ICT-enabled services.

In order to strongly promote the ICT sector and expeditious development of software industry and its export require infrastructure facilities and legal framework will be created. Provide effective incentives for development of ICT sector to both local and foreign entrepreneurs. This infrastructure will provide open access to international and national networks. ICT in all sectors of the economy will promote transparent, good governance and improved efficiency.

The Government has formulated the IT Law in order to help create an environment that promotes secure and hassle-free electronic commerce, also to enhance the integrity of commercial transactions over the Internet. It was prepared on the basis of the Model Law of E-Commerce adopted by the United Nations Commission on International Trade Law (UNCITRAL). This is part of a legislative and regulatory framework for ICT issues like IPR, data security and protection and digital signature. A national database is to be established to be accessible to all citizens. In addition, a large pool or world-class ICT professionals will be developed to meet needs of local and global markets. Another action will be enactment of laws and regualtions for uninterrupted growth of ICT in conformity with WTO stipulations.

Bangladesh is a pioneer in terms of privatization in telecommnications. It is the very first country in South Asia to have awarded a license, as early as 1989 to private mobile telephony operators. The Government created Bangladesh Telecommunications Regulatory Commission (BTRC) in early 2002 with strong regulatory independence. It has full authority to license all providers of telephony, data, networks and content services. BTRC has made important advocacy controbutions to national subjectrs as VoiP that has already ben opened to private sector investment.

Bangladesh presented a national report on ICT Vision and Reality at WSIS that is available at www.mosict.gov.bd

9. international integration and active use of the results of this cooperation,
10. complex scientific psychological and pedagogical and social research regarding the means and methods of teaching using ICT; scientific and apply research of the ICT elements, which are used in education that should establish necessary standards,
11. support of initiatives of educational establishments and institutions and their educational projects in the framework of strategies developed in the educational sphere, and
12. popularizing in the society of the ideas and ways of transformation the educational system and use by conferences, seminars, and round tables in traditional and on-line forms, mass media (including the Internet), and public hearings for this purpose.

Transforming the education system based on the full-scale introduction of ICT and distance learning technologies that will enable:

1. improve the quality of education at all educational levels many directions of training in all activities and as a result, considerably accelerate the pace of development of the economy, politics, and social spheres of the country,
2. improve competitiveness in the global market of the educational services, both the system of education as a whole and individual educational institutions,
3. ensure psychological support through involvement in distance learning and improve social adaptation and competitiveness of problem groups in the population, i.e., individuals with specific needs, the unemployed, pensioners, servicemen on duty, and persons detained in prisons, etc.,
4. ensure extensive access of the population to educational resources and create conditions for continuous education throughout their lives,
5. ensure competitiveness of Ukrainian citizens in local and foreign labor markets, and
6. give all persons a chance to feel him/herself comfortable in the conditions of permanent rapid changes in all spheres of life.

7. Telecommunications Infrastructure Development

The main technological task of the information society strategy is development of the present-day telecommunication infrastructure to be accessible by everyone. Ukrainian governmental authorities have to support the steady development of the new infrastructure, realizing that Ukraine will be unable to take full advantage of the information economy without caring for uninterruptible functioning of the high-speed and reliable multichannel information infrastructure which will allow the most comprehensive participation of private individ-

uals, companies and governmental authorities in the functioning of the intellectual economy. Also, creation of a new telecommunication infrastructure in Ukraine is one of the critical factors influencing the information society building process. This would be possible, first of all, subject to reasonable use of the resources and potential of the presently existing infrastructure elements (computer clubs, post offices, schools, libraries etc.). These facilities must be transformed into points of public access for ICT and educational resources. General accessibility and universality should be emphasized among the principal access features. In addition to the provision of general use of ICT resources, ICT and educational resources public access points have to perform the educational function of providing for the possibility of electronic involvement of every citizen.

The European choice of Ukraine provides for gradual liberalization of the telecommunications sector and ensuring the market conditions for its development. Privatization of Ukrtelecom (decreasing the level of monopolization in the market) remains the priority matter in the above matter, as this is critical for the development of the information society infrastructure. At the same time, it is necessary to ensure socially favorable conditions for provision of information and communication services as a universal service for all without exception for citizens of Ukraine. In order to accomplish this task, it will be necessary to ensure the completion of privatization processes in the field of telecommunications, to define the grounds for creation of a regulating body for this field in accordance with the requirements of European laws and to implement an efficient regulatory policy.

Achievement of this task will be beneficial for a sizable portion of the adult population of the country in being able to use all the advantages of the up-to-date ICT products and services, considering the increase in the near future (within the next 3 years) of the number of potential users of the Internet in Ukraine up to 10 million. It will assist the active involvement of the state governing process via electronic government services, as well as ensure the growth of economic potential at the expense of the increase in labor efficiency.

The key aspect of the solution to this problem will be establishing incentives for the state, companies, and individuals, with respect to investment of resources in the development of new innovative technologies and transformation of these technologies into commercially successful products.

An extremely important task will be selection of the state policy initiatives most perfectly complying with the specific IT development objectives that Ukraine strives to attain in the end.

The relevant strategic actions include:

Deployment of broadband technologies. An information economy needs a powerful information infrastructure based on the deployment of such broadband technologies as cable, digital, subscriber (DSL), fiber-optic communication, as well as fixed radio communication. They will provide companies, governmental authorities, and private individuals with twenty-four hour high-speed Internet connection facilities which can not be provided by ordinary automatic telephone exchange systems. Broadband technologies enable an entire range of new services unfeasible via narrowband communication, including open-pipe video, video conferences, remote education in the Internet, electronic bidding, and applied services. Companies effecting transactions via the Internet on the basis of broadband technologies available at reasonable prices have better chances of their full-value use in the course of the ultimate transition to electronic business, as well as creation of new business opportunities, better communication with the world and flexible response to any changes.

Creation and development of a uniform integrated information and analytical system for governmental and local authorities. This will allow, on the one hand, increase of the state management level and online interaction between governmental authorities themselves and between governmental and local authorities, and, on the other hand, moving towards the democratization of the activities of governmental authorities at the expense of ensuring people's rights to access information and provision of efficient and easy-to-use services to citizens and companies, and arrangement of interactive communication with the relevant authorities. The basic integration components performing the above mentioned functions will include a telecommunication environment, integrated information resources management system, integrated electronic document flow system and databases, analytic information processing control system, information protection system.

Provision of Internet access as a universal service. Giving an opportunity to citizens, enterprises and governmental authorities to use up-to-date telecommunication networks and associated services is the result of accomplishment of this task. However, presently deployment of broadband infrastructure in Ukraine takes place in a fragmented way. Dispersion of the population affects the cost of implementation of cable and digital subscriber communication, and in the case of

DSL affects its quality as well. The farther a dwelling, house, or office is situated from local station, the worse the communication quality. Therefore, deployment of broadband technologies requires more assistance from the government. At the same time, the government must properly realize the necessity of taking an option between the extension of the market and competition. In short, should the development of these technologies be governed by market forces, it would not be to the advantage of companies to implement broadband communication in rural areas and urban districts. Broadband communication facilities should be distributed with the help of financial resources in order to stimulate the market and cover with communication services rural areas and needy population groups, especially in the regions with lower levels of development. Accomplishment of this task will contribute to additional inflow of investments in such regions and acceleration of their economic and social development.

Creation of protected networks. The opportunities for connection to the Internet via a diverse spectrum of generally available and powerful mobile communication facilities give not only great advantages, but also new risks. More flexible and prompt response to people's needs requires introduction of more and more complicated interdependent information systems and software, thus increasing the number of weaknesses which may be attacked. Therefore, the main objective of this section is assistance in building confidence in common Internet technology users of the reliability and safety of data exchange, as well as prevention of the loss, distortion, and unauthorized access to those data. The level of protection must be sufficient to reduce almost to zero the possible damage that can be caused to the participants of transactions. At the same time, constant improvement of the reliability of the transport telecommunication network will be necessary to ensure the application of anti-crime Internet technologies in Ukraine.

Standards and unified architecture. Companies and government institutions have many systems with incompatible data structures that are to be integrated, provided their owners want to exchange information and use the advantages of intellectual economy. Therefore, the request for interconnection between networks and open standards are the bases of information infrastructures. The principal technological complexity lies not in the application of specific technologies, but in the organization of the process for acceptance of the appropriate standards and agreement of information technology architectures for different authorities and companies. The following basic types of standards must be provided:

1. Data standards,
2. Interdepartmental information exchange standards,
3. Information search standards, and
4. Safety standards.

Adapting of information technologies for education. Improvement of the quality, accessibility, and efficiency of education within information society is impossible without creation and introduction of new information technologies for education into educational process. They provide for wide use in the course of studying disciplines, of interactive remote educational software tools, expert and educational systems and other facilities.

8. Development of a National Innovation System

National support for innovation development and efficient use of newest technologies is a core priority of economic policies of all developed countries. This support takes place through formation and implementation of respective innovation policy and results in research and development to create competitive new types of products, new technological processes, and new organizational and marketing concepts.

Building the economic foundation of information society and promotion of business development in the field of ICT in Ukraine should focus on establishment of an information environment that will, to the maximum extent possible: facilitate innovation activities in all spheres of economy and social life, establish favorable institutional conditions for innovation activities, provide legal support of innovation activities including establishment of conditions for "materialization" of intellectual capital, its valuation, & use of those estimations in financial management of enterprises, support economic and legal means of actual protection of ownership rights to intellectual capital, and ensure efficiency of mechanisms of budget and decentralized financing of innovation activities.

Efficient innovation policy should provide an effective mechanism of investing into large-scale structural changes for the benefit of productions of the fifth technological mode, key technologies of which are information ones. Existing state scientific and technical programs do not ensure attainment of such final result today. Ministries and agencies are burdened with the

necessity to support traditional productions; they have insufficient funds for innovative transformation of their respective fields. Non-state-owned commercial entities cannot implement long-term projects that would ensure basic technological changes yet. Foreign investments are predominantly targeted to support traditional for Ukraine productions that have short-term export prospects.

The tendency to manage the "process" rather than the "final results" of technological changes remains the basic shortcoming of the present-day innovation policy. Strategic actions should originate from necessity to establish material and technical bases for efficient activities of the best part of scientific and technical and production potential. Therefore, in the process of development of national innovation system of information economy those entities of the "science-technology-production" cycle, which ensure positive final results of their activities, should create a promoting economic and legal environment.

State innovation policy should become the most important lever of the strategy of information society strategy in Ukraine that will establish a reliable technological basis for long-term economic growth. The main purpose of such policy is strategic orientation of production development towards creation and wide use of fundamentally new technical and organizational concepts, integrated technological systems, efficient introduction of scientific and technical developments, and provision of socio-economic, organizational, and legal conditions for constant reproduction and efficient use of scientific and technical potential.

The state implements an active innovation policy in the field of ICT on the basis of use of direct and indirect tools of economic influence as well as by promotion of a legislative and institutional environment for all entities of the innovation process.

For Ukraine, the acceptable scenario of ICT development is the one when growth of one sector is accompanied by respective growth of another sector, which results in the mixed field of "software + hardware + services". To a considerable extent, the result of this model is that the majority of companies, which develop hardware, also provide IT services and develop and license software.

Exact forecasting of the growth potential in the future of IT services sector in Ukraine requires analysis of many key economic indices. In terms of software production development potential, Ukraine can successfully compete with some leading countries of this field, for instance, India and China, that are in the process of establishing powerful software and IT services sectors. The large internal IT market in Ukraine testifies to the fact that there are big opportunities to sell products and services within the country; however, long-term success of Ukraine to a considerable extent depends on further rapid growth of its software and IT services exports. (In 2003, the volume of IT services market was US $70 million, and the share of exports in the total scope of IT services is 50%, which will grow to 60% by 2005).

An important objective of state policy of promotion of innovations should be ensuring compliance with the European Union standards that relate, in the first place, to streamlining of energy consumption and use of natural resources, technological standards, legal protection of intellectual property, international quality standards, and certification of goods and services.

Promotion of innovation policy is a complex integrated phenomenon, which includes, from one side, elements of macroeconomic policy related to establishment of favorable investment climate of implementation of innovation projects and, from the other, introduction on the state level of special incentives for innovative technological changes, which are characterized and implemented through the following measures:

1. Ensuring conditions to form a competitive national manufacturer of innovative ICT products: pursuit of respective trade policy with elements of supportive protectionism, encouragement of joint research and development projects that provide access to high modern technologies, encouragement of foreign investors to establish joint ventures that manufacture science intensive products, in particular, in the most promising directions of innovation of ICT, implementation of national standards for domestic productions,
2. Introducing statistical accounting related to the scope and results of enjoying of investment and innovation privileges: in this activity, management monitoring and openness with mandatory prompt feedback in relation to efficiency of such measures of innovation activities promotion are of importance,
3. Introduction of a system of tax crediting of the increase in the amounts of expenses of enterprises for research and development: investing in technological innovations is impossible without an increase in the scope of scientific and research activities connected with adaptation of a modern technology to specific production settings, in which those are implemented. Increased costs of

such kind during first year of manufacture of new products require that standard system provides for more even distribution of their volumes along the whole life cycle of the innovation,

4. Introduction of a system promoting cooperation between science and production within the innovation process: establishment of a preferential regime of taxation and standards of establishment and termination of activities of organizational structures that perform cooperative (joint) research and development and introduction works by means of scientific and research establishments (scientific divisions of universities) and the enterprises and organizations that invest in rapid scientific and technological changes,
5. Improvement of economic relations in the field of protection of intellectual property rights: establishment of constructive relationships that form within market conditions between the authors, owners, and customers of a patent, and intermediaries in the process of acquisition and disposal of author's rights and patents to industrial property in order to guarantee the inalienable right of each citizen to own, use, and dispose of results of his/her intellectual creative activities, including those in commercial settings, and
6. Assertion of rights and interests of domestic innovators in foreign markets: active participation by a domestic manufacturer of goods and services in international division of labor while not allowing cases of unauthorized or unfair competition, active participation in all leading international organizations that regulate international transfer of technologies.

Control and encouragement of quality of products and their manufacture through the state certification system is the most important modern factor of promotion and support of the innovation process. Confirming compliance of goods with requirements of state and international standards certification provides an opportunity to select innovation products objectively. Existence of quality systems that are recognized through certification at enterprises is an important prerequisite of commercial success. Availability of a recognized quality certificate with domestic products determines not only its price in world markets, but, often, also the very possibility to enter them. Certification is based on legislative acts that establish mandatory requirements for products.

In the 21st century, only production that is managed with obligatory consideration of ISO standards that may transform into unified standards in the course of time, may expect commercial success. Therefore, participation in these standards and their implementation acquire paramount importance for ensuring access of Ukrainian enterprises to world markets.

The strategy of development of venture capital entrepreneurship and venture capital investment of ICT in Ukrane more active should be directed toward the following objectives:

Formation of a focus on innovation infrastructure in the science and technology sphere by establishing (on the basis of state scientific centers, universities, academic and specific profile institutes) specialized structures to incubate companies in the initial stage of their development. At such centers, a two to three year regime of tax privileges for lease of premises and equipment, payments for public utilities, provision of advice and other services, and involved investments should be introduced for the new high technology companies. Within four to five years, technology development centers should be established at all leading state scientific organizations. As a result, Ukraine will have an opportunity to establish 3 to 5 thousand small enterprises annually:

1. Training of experts for the venture industry by offering respective specialties, personnel refresher courses that consider venture specialization, and development of required methodological toolkit at educational establishments,
2. Development of cooperation towards venture capital entrepreneurship on national and international levels by means of development of joint state and entrepreneurial programs as well as communication platforms and network entities (professional associations of investors, electronic technology exchanges, investment forums, venture fairs etc.),
3. Establishing technological centers and incubators on the basis of world technological clusters within its territory,
4. Establishment of the permanent position of plenipotentiary representative of Ukraine with foreign trade missions, who should be in charge of representation and promotion of interests of Ukrainian manufacturers of high technology sector abroad, and
5. Involvement of venture capital investments into the innovation sector of the economy by means of establishment of venture funds provided that there is active participation on the part of the state. As a result, state funds that are invested into venture funds will reduce at par risks of private investors,

who are members of such funds, and play a role of catalyst and partial guarantor of efficiency of the projects in the process of involvement of private investments into development of venture capital industry in Ukraine.

9. Development of Social Capital

The grounds of formation in Ukraine of an innovation economy, which is based on intellectual and information technologies of production, is the development of social capital, based on human capital. Direct components of the policy directed toward a comprehensive development of human capital in Ukraine should be as follows:

1. introduction of incentives for individual investments in human capital, in particular, deduction of personal expenses for health protection and improvement, individual and family members' education (including purchase of certain equipment and information services), payments to pension and medical insurance funds etc., from tax funds,
2. introduction of tax incentives for investments in self-employment: full exemption of individual expenses to purchase capital goods intended for individual entrepreneurship and to make contribution into establishment of a small enterprise or economic partnership etc. from tax funds,
3. ensuring professional training and improvement of a quality labor force in conformity with structural changes that take place in economy and with needs of staffing of use and development of ICT, and
4. prevention of lowering of educational level of Ukrainian population and reduction in coverage of population (primarily and school age children) with educational services, comprehensive development of the system of public education, refresher training and postgraduate study, popularization of modern knowledge about use of ICT in scientific and technological fields and household etc.

The "third sector" – activity of civil community of the country – is an important component of social capital. The priority of interests of the community in the information society is determined by the rule that selection of technological platforms or service functions may not neglect social aspects. The basic requirement is that the use of ICT should add usefulness to human life; however, it can do this only if implementation is identified with human benefit from the very beginning. Cooperation between ministries, private sector organizations, and social groups and key interest groups is very important for ensuring efficient transition to the information society.

The strategy should strengthen the institutional ability of the third sector to develop a state policy by means of provision of a system of public control and public monitoring of participation of the public (third sector) in developing, drafting, and implementing the National Strategy project. To that end, the following measures should be taken:

1. Methodological development of a system of public control and monitoring of participation of the public in developing, drafting and implementing this project: by means of joint actions (the National Forum in particular) of Ukrainian public organizations that work toward development of information society and ICT sector as well as strengthening of institutional capability of the third sector, in particular, the Forum of Non-Governmental Organizations of telecommunication sphere and ICT in respect of provision of advice, expert evaluations, advices and analysis for directions of the PWG "Electronic Ukraine"
2. Communication of current needs of NGOs that work in the sphere of development of information society and the ICT sector: by means of development of an efficient mechanism of consolidated (domestic/international) positioning of the third sector towards development of information society,
3. Communication of advantages, disadvantages, and threats to formation of the information society for public sector organizations: by means of organization of specialized actions and informative cooperation with mass media, and
4. Active participation in public-private sector projects for information society development: by means of development of targeted programs to provide ICT and educational services.

Special systems of interaction of the civil sector with business and government needs should develop in the following ways:

1. social monitoring – the process of control by the public over compliance with governmental decisions, measuring of their efficiency and adequacy, and expression of own point of view, and

2. creating a register of specific profile for third sector organizations, experts, and analysts on the Information Society and the ICT field

Interaction of civil society with mass media is of decisive importance for the implementation for the implementation of the stragegy of information society development. The interacton should ensure the following:

1. informing citizens about the advantages and disadvantages of information society development as well as coverage of problems of its formation, by establishing specialized columns, television and radio telecasts, actions, forums, and other target events, and
2. increase the role of education as a tool to involve citizens in social life and the formation of a culture of public participation.

10. Electronic Governance

The strategy is directed toward maximum use of the advantages of an electronic government system as an important factor of implementation of new governance in the state. Increase in the level of mutual trust of citizens, state and business, and quality and transparency of state services should be formed on the following principles:

1. Provision of services at any time (the electronic government works 24 hours a day, 7 days a week, 365 days a year),
2. Maximum simplicity and transparency (the electronic government should provide services to simple citizens, and not only experts),
3. Uniform technical standards and mutual compatibility (electronic applications should conform to principles of overall architecture, security, and design systems),
4. Ensuring of confidentiality and compliance with information security rules; and
5. Unreserved orientation towards citizens' opinion when innovations are introduced.

As regards the state of affairs in this direction, pursuant to the Resolution No. 208 of the Cabinet of Ministers of Ukraine dated 24 February 2003 "On the Measures to Establish the Electronic Information System "Electronic Government" During Year 2004", it is envisaged to begin the 2nd stage of its implementation, in particular, provision of individuals and legal entities with common use information services. In the final phase, in 2005, provision of individuals and legal entities with information and other services that require identification of legal relationship entities and provision of integrity and authenticity of information (with the use of digital signature) needs to be ensured.

The system of electronic governance in Ukraine should be oriented towards:

1. Provision of government services without limitations by establishing national and regional networks of Public Access Points to have an access to ICT resources,
2. To the maximum extent possible, efficient management of processes in the state: by automating relations between state institutions on various levels, relief of civil servants from routine work, economy of budget funds, and development of a transparent reporting system,
3. De-bureaucratization of relationships with state agencies and lowering the level of bribery by gradually transitioning critical amount of relations between citizens, enterprises, and state agencies to electronic format. New patterns of relationship between (government and business) and between (government and citizens) with the use of ICT is transparent and economical to maximum extent,
4. Improvement in the quality of provision of government services: by establishing "electronic alternatives" to operations with citizens and enterprises registrations, licensing, certification, fining, taxation, elections, and payments of fees,
5. Increase in efficient of document circulation and commercial transactions by using an electronic document circulation system and digital signature on the basis of applicable legislation,
6. Increase the level of investments in state projects by involving private sector investments through open tenders,
7. Increase the level of interaction with the public sector by involving public organizations through provision of electronic services to citizens and organizations,
8. Acceleration of administrative reforms: by using all-around capabilities of the electronic government in activities of state authorities, and
9. Increase in competitiveness of the state at the international level: by actively involving Ukraine with electronic governments of foreign countries.

11. Institutional Support

Information society development in Ukraine should be developed on the basis of adequate institutional support. Efficient functioning of a modern economy built on knowledge and wide use of information technologies is only possible in the existence of legal bases, the establishment of which the concept of improvement and codification of legislation should be developed and on this basis, standard and legal acts of Ukraine related to specific legal institutes of ICT sphere and the spheres, in which ICT are used, should be adopted with maximum harmonization with provisions of EU legislation.

The current stage of development of legal and technical standard bases for regulation of informatization processes is insufficient to ensure advanced pace of development, which does not allow generating reasonable requirements to implementation of ICT. The lack of necessary standard acts and technical standards restrains both development of ICT and their introduction in different spheres of life of the society, state, and persons.

Improvement of standards and legal basis to support information society in Ukraine will allow settling of normative aspects of activities related to implementation and use of ICT, producing and disseminating of electronic information, establishing and using national information resources and the radio frequency resource, developing of telecommunications, establishing a standardized system in the ICT sector, ensuring of information security etc. One of the basic obstacles on the way of building of information society in Ukraine is lack of consistency of provisions of national legislation as well as with consistency with international law in this field.

It is expedient to unite the existing standard and legal acts that govern relations in the field of information technologies into an independent branch of law, "information law". However, a considerable part of those acts require amendments and restatements as they are in some extent in disagreement with or in conflict with each other. Besides, there is a necessity to adopt a qualitatively new legislation, which would cover all directions and fields of legal regulation of relations relating to establishment, implementation, and use of ICT. The majority of applicable laws and subordinate standard acts directed towards regulation of information relations were adopted prior to effectiveness of the Constitution and even with considerable amendments and restatements do not fit for addressing present-day problems.

Concept and terminology of the standard and legal basis of ensuring development of an Information society in Ukraine require streamlining.

A procedure that would ensure preliminary analysis of draft laws and subordinate acts by experts of three sectors (public, private, and state), should be established as a standard. The unavailability of such a procedure to date is due to a majority of laws that form technical base of the field are in disagreement with each other, which poses problems in their practical application.

The exercise of rights and duties of entities having information relations and responsibility for incompliance with those must be established on a legislative level.

The lack of an integrated approach to formation of Ukrainian legislation in the field of ICT has been caused by the randomness of laws and subordinate acts on information relations, which complicates their search, analysis, and agreement for practical applications.

The concept of development of information legislation envisages solving two problems – primary and prospective:

1. Primary – adoption of basic law and laws in the field of information (On Freedom of Information), which would establish general provisions and principles of regulation of information relations while separate laws would regulate a circle of relations of a narrower (specific, institutional) nature in respect of separate legal institutes of information legislation: access to information, personal data, informational openness of state authorities, telecommunications, legal status and activities in the sphere of ICT etc, and
2. Prospective – systematization of information legislation by means of codification, and adoption of an Information Code: which would unite separate legal institutes of the field.

The strategy for development and improvement of a legislative basis in the ICT sector should ensure development of an information society in Ukraine by means of resolving the following matters:

1. The basic Law "*On Information*" to be approved with restatements should become the backbone of the legal basis related to information. This law should clearly define what should be understood under information, procedures for creation, collection, use, ways and means of dissemination of information, legal provisions of activities in the field of information etc,

2. The procedure for exercising the right to access public information (information possessed by state authorities and local governments) must be settled clearly and on legislative level. The respective issues should be included in *the special Law* '*On Access to Public Information*". In this Law, provisions for access to such information, the procedure for obtaining and use of restricted information, the procedure for appeal against refusal to respond and delay in response to an enquiry for information etc. should be regulated,
3. Relations, which arise during creation, implementation, and use of information technologies, information products and resources, and provision of services related to use thereof, should be defined and find their reflection in *the Law* "*On the Activities in the Field of Informatization*". The Law should define the structure of ICT market in Ukraine, legal status, and responsibilities of entities of relationship in the sphere of ICT,
4. A set of legislative acts in the field of information security, in particular, the Concept '*On Information Security*", the Law "*On Commercial Secrets*", the Law "*On Protection of Personal Data*" etc., should be adopted,
5. Relations in the field of electronic commerce must be regulated on legislative level by way of adoption of a special Law "*On Electronic Commerce*". The procedure for making agreements in electronic digital form may be included there,
6. Legal mechanisms for implementation of the legislation on electronic document circulation and electronic digital signature in different fields of activities in respect to subordinate standard acts must be developed,
7. Legal mechanisms for exercise of electronic governance must be developed,
8. Legislative amendments of applicable Ukrainian legislation in respect to protection of copyright and exercise of intellectual property rights in the network must be adopted,
9. Legal regulation of technology parks, incubators, and other institutions, which participate in scientific and production activities, should be improved,
10. Legal regulation must be extended to relations that arise in the information sphere, in particular those related to protection of consumer rights, protection of domain names, advertising, registration of trademarks etc,
11. Legislation related to establishment of responsibility for illegal use of ICT must be developed and improved,
12. Legislation in the ICT sector must be developed while considering provisions of international law in order to ensure harmonization of national with international laws,
13. Efficient legal support of information legislation envisages its further systematization, in the first place, by means of codification, and
14. To register the "National Strategy of Information Society Development in Ukraine" as approved by Law, the Action Plan must be developed, which should be approved by the Cabinet of Ministers of Ukraine.

In general, the Strategy should be based on existing achievements of national and international legislation and serve a guide for adoption of standard acts in the future.

In view of strategic importance, scale, branch-to-branch nature of the problems of development of information society, and necessity to make decisions and efficiently comply with those as soon as possible, development of a special institutional system. This is an institutional structure that relates to development of information society in Ukraine is required while observing the following principles:

1. implementation of functional principles of state government in development of information society,
2. harmonious combination of efforts of public, business, and state organizations in the process of preparation of and compliance with decisions, ensuring of openness and publicity of those processes,
3. clear definition of the powers and responsibilities of state authorities,
4. efficient combination of vertical and horizontal principles of management and regulation, and
5. efficient concentration of powers in the framework of activities of separate state executive authorities; ensuring clear management hierarchy in state sphere

With a view to enhancing efficiency of state-by-stage implementation of activities in institutional systems in the sphere of development of ICT and information society, the following is suggested:

1. To establish, as soon as possible, a Consultative Council with the Cabinet of Ministers of Ukraine

on Information Society Development. Prepare as Regulation on the Consultative Council with the Cabinet of Ministers on Information Society Development and the Field of Information and Communication Technologies as a standing body to provide expert assistance and advice in the process of state activities in the field of development of information society beginning in 2004,

2. To establish the National Council on Information Society Development, legal status of which will be determined by law. The Prime Minister should be the Head of the Council, and ministers, heads of other central executive authorities, heads of parliamentary committees, who are responsible for implementation of different components of the Strategy, as well as managers of enterprises, scientists, representatives of public organizations, which are active in the field of ICT, should be members of the Council in 2005,
3. To introduce a position of Vice Prime Minister for ICT, whose assignment will be to coordinate activities of ministries and other central executive authorities in the sphere of implementation of the state policy of development of ICT and information society (in the year 2005),
4. To establish the Ministry of Information Society in some time which would become the basic state authority responsible for development and implementation of state policy in respect of development of ICT and information society, including responsibility for fulfillment of the action plan related to implementation of that strategy in 2006, and
5. To establish a network of specialized scientific and technical centers, the activities should focus on priority directions of development of information society electronic information resources; electronic business, telemedicine, remote training etc by the end of 2004.