Some Conceptual Views on Information Security of the Society

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Abstract: Mechanisms existing in the international practice on ensuring information security were studied, the work done in the direction of formation of a national legal and regulatory base in this area was investigated and proposals were put forward. As a key component of security of the society, duties of information security were specified, existing threats and their targets were investigated, proposals and recommendations to ensure information security of the society were given.

Key words: Information security, information society, electronic science.

1. Introduction

The modern world is characterized with the transformation of industrial society into information society. The major objectives of establishing information society include issues, such as the formation of legal basis for the IS, development of human resources, rights of the citizens for obtaining and using information, formation of electronic government and electronic trade, in particular, strengthening the intellectual potential of the country, establishment of information and knowledge-based economy, development of modern information and communication infrastructure, formation of national electronic information space and provision of information security. As a development stage of the civilization, information society is characterized by the increase of the role of information and knowledge in the society, growth in the share of information communications, products and services in the flow of domestic goods, establishment of the global information space ensuring effective exchange of information and access into the global information

resources of the people. Currently, the wide application of ICT (Information and Communication Technologies) in various spheres of the society, including economy, energy, ecology, etc., emerges the problem of information security. In general, the more dependence of all sectors of society and the people on ICT is stronger, the more obvious the importance of information security becomes. As one of the major duties of the information society establishment, information security is becoming one of the main directions of providing security of the government, society and person.

2. International Practice on Ensuring Information Security

As the society is becoming informative, the people become more dependent on the information. And failure to provide information security may cause enormous complications for the society. Information security priorities of any state are determined on the basis of balanced ratio of the interests of the government, society and citizens. Depending on the country's political, military, emergency, etc. conditions this ratio may vary. As one of the key components of the society security, information

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security objectives are information confidentiality, information integrity, information availability and the struggle with harmful contents.

To ensure information security, a systematic and comprehensive approach is required. The work on creation of conceptual, organizational, scientific-methodological, legislative, material and technical basis should be carried out by the related organizations in this field. As the measures necessary for ensuring the security of the information society, serious investigation of the international legal mechanisms, formation of the national legal and regulatory base, development and implementation of security policy, application of specific technologies, monitoring and management of information security in the country and corporate levels, staff training, public enlightenment and formation of information security culture among the citizens as part of information culture can be displayed. In general, formation of international legal mechanisms, national legal and regulatory base is of great importance for providing information security, as well as the implementation of necessary measures, and this problem should not be considered only in the context of separate countries, but in the context of global information security. A number of programs, projects, techniques have been developed in the international practice with the purpose of ensuring the global information security. Resolution on the global information security culture adopted by the UN in 2002, the global information security program adopted by the International Telecommunication Union in 2008 can be examples [1, 2]. In addition, according to the Article 40 of the Declaration adopted in the NATO Lisbon summit 2010, FOC (Full Operational Capability) centralized organization is expected to be developed in 2012 [3]. This body will implement all the information security infrastructure of NATO.

Information security problems are one of the integral parts of national security in our country, and formation of normative-legal base is considered as a priority issue in the information society development. Series of important laws, regulations and orders have been adopted for the formation and development of legislative framework of the information security in Azerbaijan, such as about "information, informatization and information protection", "state secret", "e-document and e-signature", "e-commerce", "obtaining information", "telecommunications" laws, as well as the "national security concept of the Republic of Azerbaijan" adopted in 2007 [4-10].

3. Proposals and Recommendations to Ensure Information Security of the Society

It is known that in the global information society, information is becoming a leading factor in the economy, science, education, political and in the other spheres of public activity. From this point of view, information society consists of a collection of corporate and public information spaces which is in mutual relations in a very complex form. Overall, Information Society includes five formation levels: communicatization, computerizing, networking, informatization and virtualization. The targets of the threats to the information society security are just these levels [11]. One of the main reasons for the emergence of information security threats is the lack of mechanisms regulating the activity of the Internet in an international level. With the rapid development of the Internet and the emergence of the mass users, the threats to the computer and communication systems are more probable and their realization is applied even more widely. In spite of the threats at various levels, a human being is a source of danger in any case. Depending on the inner world of each individual, his or her environment, psychological state loosing responsibility before the community results in violation of the rights of the others. According to the statistical reports, the amount of damage of the system caused by its users is exceeding the damage caused by the viruses. Some less safe places exist due to the lack of sufficient knowledge in the field of information

security obtained by the users, system administrators and other experts. Of course, it depends on the mentality of the people, and as the time goes by, it makes necessary a new culture to be formed.

The responsibility division to ensure information security of the society should be carried out over the all levels. Security policy of each corporate information space should be designed and realized. In particular, the problem of energy security of the society, which is the key component of information security, should be in the focus. It should be taken into account that as energy security is not domestic problem of a state, the damage of a server of any country limits the access of other countries to the existing information resources.

One of the most important missions of information security is to provide freedom of information. An important indicator of providing the freedom of information is a possibility of a continuous, unlimited access (availability) to the information resources. A rapid increase of need for Internet access speed made it necessary to adopt orders about the minimum rate of Internet access speed of the citizens in some countries to ensure freedom of information. It should be noted that, in 2005 the law "about obtaining information" was adopted and in order to carry out its duties, in cooperation with the special state protection service, the Institute of Information Technology of ANAS worked the rules on development and operation of the web-sites functioning in gov.az domain zone.

One of the most important issues is related to the protection of collected, processed and transmitted information of the citizens about their private and family life. It should be noted that in a number of countries, institutions of "information ombudsman", "information tribunal", "information and telecommunications ombudsman" are functioning in order to monitor the implementation status of the Articles 19 and 21 of the Bill of Human Rights [12]. In other words, information ombudsmen, on one hand, carry out monitoring of protection status of

information freedom (Article 19), and of the personal data (Article 21) on the other hand. Personal data infrastructure formed in the country is one of the most important segments in the process of information society establishment. In 2010, the law "about the personal information" was adopted in our country and the work is currently carried out in accordance with the implementation of the tasks arising from it [13]. Taking into account the existing experience in this field around the world, our country joined the Convention of the European Council (Convention No. 108) dated 1981, for the "protection of individuals with regard to automatic processing of personal data" [14].

Biometric information technologies have great opportunities in ensuring the security of the society. It is known from the experience that one of the main reasons for crime, non-ethical behavior in information and communication systems, particularly in the Internet environment, is imperfection authentication mechanisms of the users if necessary. After September 11, 2001 terror events occurred in the U.S., the UN Security Council adopted a resolution on the implementation of a new generation documents to carry out identification of people based on their biometric data. In 2007, the state program "about the establishment of biometric identification system" was adopted in Azerbaijan [15]. It is possible that on-line biometric service application will provide great opportunities to ensure high security of the society in the near future.

The Internet providers also play an important role in ensuring information security of the society and they have important duties. Today, the Internet services are ensured by approximately 40 providers in the country. Information security of the society mainly depends on the providers and their administrators. Therefore, the responsibility of Internet providers and administrators before the community should be established in accordance with the legal mechanisms. If base on international experience, WSIS declaration (world

summit on the information society) [16] and the legal documents adopted by the international organizations, the European Union and by the developing countries put forward important tasks before the network operators and Internet providers to struggle with the spread of spams, viruses, harmful contents. If the struggle with the spams, viruses and harmful contents is carried out in the network operator and provider level, computers can be protected from the viruses with very few funds. In addition, based on international experience, the development of financing mechanisms of network operators and providers must be paid special attention.

One of the segments of the information society forming in our country is an e-science. E-science network platform has been registered in TERENA (trans-European research and education networking association) within the framework of ANAS membership with the recommendation of UNESCO special commission for AzScienceNet Science computer network [17]. It has created favorable conditions for the integration process of scientific bodies of Azerbaijan into European and international scientific networks. Expansion of AzScienceNet network infrastructure, reliable establishment of security and monitoring system, development of data center, application of open grid, cloud computing and eduroam services, organization of video conference system contribute the implementation of complex work in the direction of integration with the relevant scientific network institutions functioning at the international level and in other countries. From this point of view, ensuring information security of AzScienceNet is of great importance. Aiming at providing information security, AzScienceNet "usage policy" and "information security policy" has been developed and complex measures for ensuring the network security have been implemented at the Institute of Information Technology of ANAS. Monitoring and security services of AzScienceNet have been organized; Az-CERT team has been

developed for the network environment and is currently operating [18]. At the same time, AzScienceNet plays role of experimental basis for the application of scientific research in the field of information security carried out at the institute.

At present, prevention of criminal and terrorist purposes of the usage of information resources and technologies, protection of human rights, personal data immunity and complying provisions about freedom of speech are of great importance. Besides protecting human rights, all forms and manifestations of terrorism in the Internet should be struggled, and serious measures should be taken to eliminate the digital inequality. At the same time, increase of ICT role in the development of children and the youth, as well as in solving the problems of physical disabled people, gender problem brings ensuring information security into the foreground as an important issue in the development of society. Taking into account all these factors, the legal system of Azerbaijan has been adapted to the requirements of the documents adopted internationally in regard to the virtual space.

4. Conclusions

As the information society is being developed in the country, the necessity for development of unique and multi-level state-wide information security system emerges in the process of electronic state establishment, as well. In general, information society formation complicates considerably providing information security of the countries, increasing their immunity, struggling with the threats of different nature and scale alone, and therefore, all countries, civil societies, companies and people should be interested in formation of a global information security environment. First of all, division of duties and responsibilities must be determined in ensuring information security of all countries. Each corporate information space should create its own CERT team and horizontal and vertical relations based on mutual trust mechanisms of state, business and civil society

sectors. Grounding on international experience, indicators should be designed; analysis to be conducted and effective decision-making mechanisms should be established to monitor (statistics) the information security status all over the country.

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