

**20 Annex - Enterprise and industrial policy**

**153. STRATEGY FOR INFORMATION SOCIETY  
DEVELOPMENT IN MONTENEGRO FROM 2009 TO 2013**

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**MONTENEGRO**  
**Ministry for Information Society**

**Strategy for Information Society Development in Montenegro from 2009 to 2013**





## Introduction

There is no doubt that information and communication technologies (ICT) have considerable impact on economic development, employment and human capacity. In terms of this, development of the economy based on knowledge, generation of efficient public administration and the inclusion of all citizens in the organization of public life should be priorities of great value for a small country with limited resources, such as Montenegro.

According to the Strategy of Information Society of the European Union, i2010<sup>1</sup>, ICT is about 25% of GDP and about 40% of productivity growth in the EU. In order to achieve these results, make Montenegro an equal member and when the use of information communication technology is in question, it is necessary to develop modern ICT solutions that will be used by both public and private sector. In this way, a clear picture can be formed that the creation of Information Society is strategic task of Montenegro during its social, economic and political development.

In Montenegro, the development of information society was recognised in 2004 when the Government of Montenegro adopted development strategy of information society - a way in society of knowledge. Recognition of strategic priorities was the beginning of development of information society and electronic services designed for public and private sector. Strategy included a period of 4 years with clearly defined goals, activities and deadline, and by realising the importance of social development based on knowledge, a need for development of new strategies, which will secure the way to the development of information society in 2013, was created.

In May in 2008, the Government has also adopted Action Plan for development of IT projects until the year 2008, using which, priority projects were defined in domains of registries creation, information society promotion and rising awareness about the necessity of creating a society based on knowledge.

Today, one of the strategic priorities of Montenegro is the application of information - communication technologies in all its development strategies, because ICT offers great opportunities and has general influence on the national economy and global competitiveness.

Realising the importance of using information and communication technologies, Strategy for Information Society Development in Montenegro from 2009 to 2013 will have following objectives:

- To improve the current state in domain of ICT;
- To clarify roles, build a partnership between public and private sector and facilitate the participation of all key partakers, including non-government organisations;
- To pass on the existing scarce resources to the use of ICT for national priorities and help determine the dynamics of additional investments;
- To complement the impact of the market, to promote social changes, to enable local initiatives, to ensure collective learning and to enable the expansion of successful solutions;
- To point out special needs and power of important parts of the ICT industry for export and competitiveness of the economy; <sup>1</sup> i2010 – A European Information Strategy for growth and employment
- To redirect national system of innovations to meet the essential and long-term technological requirements of ICT (as a technology with general purpose);
- To point out the coordination failures, explore the network effects and to provide additional investments for utilisation of ICT as an infrastructure that enables and provides the necessary services.

The development of information society and ICT implementation, in order to improve efficiency of economic and social processes, requires coordinated efforts and activities taken by all government institutions. In this regard and in accordance with the authorities, the coordination of information society development and implementation of strategies and action plans, which will be an integral part of the strategy, will be entrusted to the Ministry for Information Society. In the process of implementation of the strategy, the goals will be achieved only with coordinated activities of all members of society – both public and commercial subjects.

## **1. Principles of Information Society Development**

Principles of Information Society development in Montenegro have been defined already in 2004, by the Strategy for Information Society Development - a way in society of knowledge. However, in an environment that is characterised by rapid changes, especially in domain of ICT, the principles that will guide information society development are as follows:

- Development of information society in Montenegro is a strategic choice where the public sector has a leading part in the fulfilment and definition of these principles;
- The information society will develop using correct coordination and cooperation between public sector, private sector and third parties;
- Public sector is an intelligent consumer, which ensures to enable more freedom in procurement process and to leave space for innovative solutions;
- The information society will be created for all citizens of Montenegro, where the special attention will be paid to the integration of social groups with special needs, to regional development and strengthening of local self-initiative;
- interest of the creators and users during the implementation of Law on protection of intellectual property;
- Development of information society must not weaken the trust of citizens in certainty of the process. Protection of fundamental rights, personal data and identity must be secured, and reduction of risk and the number of errors in information systems must be guaranteed;
- Activities taken for the development of information society in Montenegro should be connected with activities in the field of research and development;
- Information society and the opportunities that it brings must be taken into account during the execution of policies of all sectors;
- Trends that exist in the EU member countries and around the world must be taken into account. Montenegro should be ready to share knowledge and experience with others, but also to learn on good examples from the countries in region;
- In the public sector where some IT solutions are already being used, avoiding the duplication should be done;
- Public sector should reorganise business processes in order to ensure efficient gathering of information from citizens, businessmen and public services;
- Public sector should provide equal opportunity and treatment of various hardware and software platforms and to ensure the interoperability of information systems using open standards;
- Data collection and development of ICT solutions are based on the principles of re-use.

## **2. Current Situation and Challenges**

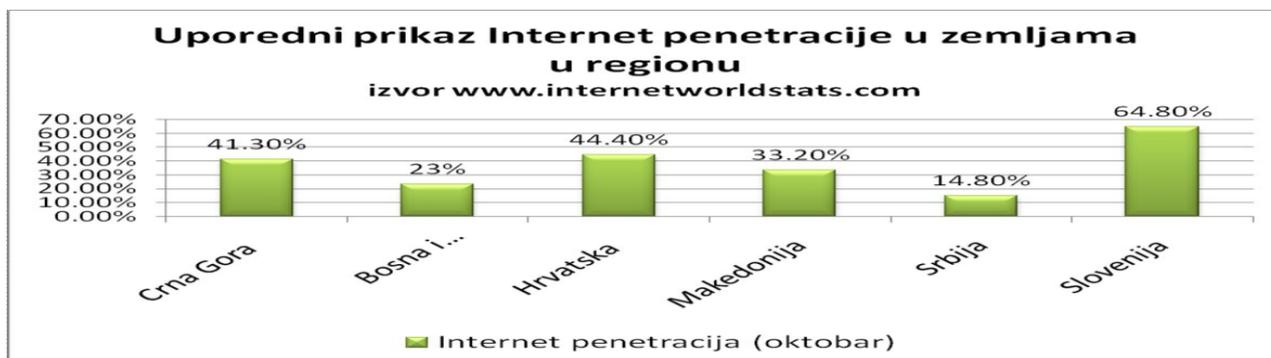
Building the information society, i.e. society based on knowledge, creates the preconditions for the realization of some of the goals such as:

- Fast economic development;
- Accelerated reforms, the acceptance of world standards, development of democracy;
- Construction of cheaper, more efficient and transparent state department;
- Facilitated communication for citizens and business entities with the state and elimination of business barriers;
- Equal chances for individuals to improve their education and lifetime learning;
- Greater safety for citizens and respect for human rights, easier prevention of organised crime and terrorism.

The fundamental objectives of the development of information society in Montenegro, will enable citizens and entrepreneurs to receive information in time and to actively participate in society through networked information system; it will enable connection and improvement of Montenegrin economy, overall exchange of information and experiences in the business world and entrepreneurship, as well as groundwork for the state to become a transparent, fast and efficient service. Thanks to the ICT, manufacturing and State's services for citizens and business will be organized in a significantly different way (more efficient, easier, faster and cheaper).

Montenegro is characterized by high penetration of mobile telephony. At the end of January in the year 2009, the number of users in Montenegro was 1,144,072, which corresponds to penetration of 184.48%. In the same period in 2008, the number was 5.67% bigger. This high percentage shows that it is necessary to develop mobile services as well as Internet services. The challenge for Montenegro should be high level of mobile services use (such as payment, reservations, etc).

According to data published by InternetWorldStats ([www.internetworldstats.com](http://www.internetworldstats.com)), the number of users of the Internet is about 41.30%. This includes subscribers and the users (who are not subscribers, but use the Internet at work, in school, on the internet kiosks, etc).



## 2.1. Information Infrastructure

Participation of citizens in a society based on knowledge implies that all users can access ICT services equally and under the same conditions. This is possible to achieve through liberalization of telecommunications market and through the creation of competitive market in which a strong network infrastructure will be developed and access will be available at convenient terms. In this way, telecommunications market will become competitive and access to all services will be available to everyone. Technological progress, development and increased level of providing triple solutions (digital television, Internet connection and phones) and mobile communications, will direct further development of the Internet and Internet services. At the same time, one should bear in mind that the use of information society services would increase the speed and quality of electronic communications. Launching new advanced services will be focused on larger centres, while in less populated areas high-quality broadband will still be a challenge. In any case, internetisation of rural areas contributes, to a large extent, to rural development, by ensuring the availability of operational information and services as well as help in the process of increasing life quality in these areas.

For specific segments of population, mostly for socially handicapped categories and elders, Internet access is often restricted due to lack of personal computers. Researches have shown that in Montenegro, 47% of households have a computer, but that the main barrier when purchasing a computer is lack of financial resources. Regarding this, it is necessary to arrange activities in order to increase the number of computer and Internet users, by offering various advantages when purchasing computers, cheaper Internet access, free kiosks through Montenegro, and similar.

## 2.2. ICT and the Use of the Internet

As already mentioned, one of the challenges for Montenegro, concerning development of information society, is improvement of Internet quality and availability in different regions, especially in those areas where, for the private sector, it is not profitable to make investments. In any case, the use of the Internet depends not only on the availability of infrastructure or on the services prices, but also on the motivation – i.e. the existence of useful and necessary content as well as awareness about opportunities, which information society provides. Therefore, although it is very important for Montenegro to provide online services, it is more important to allow citizens to use those services, as well as to create a situation in which the citizens and the economy will understand the necessity of using them. When this is achieved, it will be necessary to build up the confidence further and to improve services by using modern information and communication technologies.

One of the most important issues is the development of inclusive society, which requires building

up the confidence in electronic communication channels. Increasing number of Internet attacks, restrictions regarding the protection of infrastructure, and possibility to copy and integrate large number of data very quickly and easily can result in increased fear of citizens for their personal information, privacy and their confidence in the safety, as well as in reduced

interest to use benefits that information society provides. Confidence in the Internet and motivation for using it depends on people's own skills and time they spend using computers and electronic services. Regarding this, it is necessary to provide education system for the whole population, which must be continuous - lifetime. It is also very important to understand that ICT not only creates opportunities to solve bottleneck problems, but provides additional opportunities to participate in public life (e-Democracy) and chances for continuous, flexible and personal development (eLearning), entertainment, etc. One should realise that today more than half of people who do not use the Internet has no intention to begin to use it. In order to avoid further creation of the digital gap between those who have access to the Internet and electronic services, and those who do not, providing public services should be available and ensured through multi-channel systems.

Beside citizens, it is necessary to pay attention to private sector and to increase efforts in order to improve understanding of the impact that ICT has on economic activities in companies. Understanding the importance of the impact that ICT has on entrepreneurship and the economy generally is not only a challenge for companies and business sector, but also for the public administration. Due to this, the researches that measure and analyze the impact of ICT on economic growth and development should become numerous.

### **2.3. Competitiveness of ICT Sector in Montenegro**

In order to be able to say that a competitive ICT sector exists in Montenegro, it is necessary to implement certain changes in the organization of the ICT sector and also in terms of education, raising awareness about the necessity of creating such situation, etc. Creating competitive ICT sector is very important in the process of creating the information society, as from the aspect of improving companies and human capacities, so from the aspect of strengthening the economy of knowledge. This sector can be efficient as soon as it orientates towards the situation in which the objective is to create high-quality values, rather than low values. The issues concerning the protection of intellectual property are important challenges when desire for the creation of intellectual values or use of these values in a lawful manner, can be reduced by wrong expectations and fears. Creating intellectual property and its use, in accordance with the Law, can be promoted by ensuring effective legal protection and increasing the awareness of citizens concerning this need.

One of the most important issues is related to information protection. In comparison with the previous period, in recent years the number of attacks and threats significantly increased, the security measures became considerably more expensive and risks became higher. Only one agency, company, labour group, etc, cannot guarantee information protection today, but it is necessary to create cooperation between all institutions in Montenegro and institutions outside of Montenegro.

### **2.4. ICT and Public Administration**

Widespread use of ICT in public administration provide opportunities for improving efficiency of State's mechanisms, which affects the availability and quality of public services and increases chances for the citizens to participate in the decision-making processes.

Increased efficiency and transparency of public sector while using ICT will change the way of public administration functioning and will cause changes in terms of skills that employees in the public administration and citizens, who want to take advantage of ICT supported services, need to have. Organizational changes, which are necessary for the effective functioning of public administration in the information society, must be thoroughly analyzed and systematically implemented. Moreover, rapid development of technology and the paradigm of changes that come with it bring the necessity to increase the number of socio-economic researches in order to formulate the policy that will satisfy needs of the information society.

As already mentioned, the use of ICT increases the efficiency while providing public services for citizens and enterprises. In addition, ICT presents an effective tool that increases the number of citizens who join public debates and decision-making processes. Today, the web sites of public sector are mainly used for giving information and, in some cases, for giving eServices. Their role in the process of raising participation of citizens has yet to develop.

In general, public information can be accessed easily, although they are spread. The importance of integrated system approach increases alongside with increase of need for information management, information browsing and use of eServices. Confidence that citizens have in the country can be increased through the proper use of personal data - by providing the possibility for citizens to protect and monitor who uses their data and for which reason.

### **3. European objectives and standards**

During the European Union Association process, one of the important segments, which need to be coordinated with European standards, is the Information Society. South-eastern European countries have recognized the importance of introduction and development of information communication technologies and they are very active in the region, which is obvious from the method by which they are dealing with challenges on the way of society of knowledge, relying on the potentials that digitization provides, as well as trying to use the possibilities to integrate their economies in global market.

Taking the obligation to work progressively on activities that are identified as significant in the order to develop society of knowledge, according to the signed eSEE Agenda for the period 2002-2007, Montenegro has expressed readiness to persist in the process of transformation from industrial to information society. Strategy for information society development, which referred to the period 2004-2007, was adopted in 2004, and the legal infrastructure for the development of e-Government. Adopted Laws (Law on Electronic Trade, Law on Electronic Signature, Law on Implementation of Regulations for the Protection of Rights on Intellectual Property, Law on Electronic Document, Law on Electronic Communications, Law on Data Secrecy and Law on Protection of Unrevealed Data) are compliant with European Union directives.

Obligations that have been completed and activities that are being done constantly made Montenegro one of the leading countries in the Southeastern region, but this is only part of tasks and goals that Europe dictates and that should be achieved on the way of further development of information society.

#### **3.1. Strategic priorities**

Process of building the information society creates preconditions for realization of goals that should be achieved on the way of society of knowledge, and positive effects will reflect on complete economy. Therefore, new basis is being created on which business connections between companies will be established, availability of information is achieved and macroeconomic implications are obvious in regard to employment, customs and tax system, as well as competitiveness in the wider sense. Objectives that should be pointed out here are: rapid economic development, through the increase of GDP, more exports, reduction of trade deficit and unemployment, etc; acceptance of European standards, accelerated reform and development of democracy; building cheaper, more efficient and transparent State administration; create appropriate institutional surrounding that will support spreading and effective using of information communication technologies and knowledge in all economy sectors; forming society of educated and creative people, with an opportunity to learn during whole their lives; adoption of legal regulation for information society in accordance with Aquis Communautaire; promote development of information society, as well as providing better protection and respect for human rights.

Main objectives of e-Europe are to open the door of digital era and to provide Internet access to every citizen, every house, every school, every company and administration.

During creation of digitally literate Europe, whole process of investments in new ideas and their development should be socially inclusive, to build up customers' confidence and to establish social harmony. In order to achieve these objectives, it is necessary to provide:

- **Broad-based access** (fast access to the Internet at low prices, using telephone lines,

- wireless technology or via satellite);
- **Security** (to protect electronic network from hackers and viruses and make it safe in order to build up customers' confidence in electronic payment);
- **e-Inclusion** (to ensure that large part of the population, regardless of the geographical and social differences, can access information society);
- **e-Administration** (to connect State administration with citizens and economy, by providing the option of using public services on the Internet);
- **e-Learning** (to adapt educational system and training to the economy of EU that is based on knowledge and digital culture);
- **e-Health** (to enable electronic health care services, which are user oriented and provide information for citizens and health workers, with emphasis on introduction of infrastructure for health protection, disease prevention and health trainings on the Internet);
- **e-Business** (to stimulate development of e-Commerce by buying and selling goods via Internet and to reorganise business processes using digital technology).

Confirming the importance of the initiative for electronic South-eastern Europe and accepting the information society as a basis for faster development of the region, by reducing the gap in development between the region and the European Union, as well as between countries in the region and the rest of the world, Governments of countries in the region have made an agreement about future objectives and tasks defined by the document eSEE Agenda Plus, for the period 2008-2012.

This strategic document defines the objectives that are in accordance with the Action Plan of member states of EU i2010 "European Information Society for Development and Employment." i2010 promotes an open and competitive digital market and points out that the information and communication technologies are main initiator of improvement of the quality of life. As key element of development and business, i2010 seeks integrated approach to information society and creation of policy for audio-visual media in the European Union.

### 3.2. Objectives up to 2013

In an effort to be part of a unique information area of South-eastern Europe, Montenegro must make innovations and invest in education and researches in domain of information communication technologies. On the way to society of knowledge, it is still necessary to reduce the digital gap, expand the set of services and make central system and portal for electronic administration.

Analogue to this, three major priorities have been identified in the specific environment of South-eastern Europe: unique information area, innovations and investments in ICT researches and education and inclusive information society (information society for all).

Within these priorities, the obligations that need to be fulfilled and objectives that need to be implemented are specified, and they are:

**Creation of unique information area** aims to create an open and competitive market for information society and media services. In this regard, the activities will be directed to: improvement, regulation and development of broadband network of high speed and services that can offer secure access to numerous data; stimulation of development of digital contents and services for the areas of general interest - culture, health, science and education, geographic information, etc; adoption of national interoperability framework with regard to the European Interoperability Framework (for administrations) to ensure compatibility and collaboration of systems, processes and human resources and to ensure unobstructed entry to EU and provide services for a client; provide digital convergence of information society and media services, networks and equipment, which includes a consistent system of rules for Information Society and Media on the basis of technological neutrality, which is defined by the relevant European regulatory framework; facilitate national / regional communication and traffic by forming key public infrastructure at the national and regional level for secure e-Business on the basis of a qualified electronic signature.

Through **innovations and investments in ICT researches and education**, the measures to achieve this should be identified in order to ensure larger profit. Regarding this, following measures

will be taken: to fulfil the obligation of information literacy, there will be made investments in ICT infrastructure in educational institutions and in creation of classrooms equipped with computers and Internet connection; by standards for minimum and advanced ICT knowledge, the educational system will be improved with implementation of direct changes in curricula and programs in our schools; to reduce the gap between different generations, there will be organized professional education for ICT and with the private sector there will be carried out activities to synchronize different levels of ICT knowledge, as well as to make a program to improve knowledge throughout lifetime; in order to implement new technologies and methods for improvement of regional economies, there will be done more researches in the region; by developing academic and scientific research network and by establishing better connections between researchers and institutions, the ICT researches and process of technology transfer will be supported.

**Inclusive Information Society** promotes equal conditions for everyone on the way to society of knowledge and reduction of digital gap. Accordingly, it will: ensure equal opportunities for everyone to access technology, by eliminating sex and digital discrimination, as well as by reducing differences between different socio-demographic groups; it will provide a set of basic solutions for public services and e-Government through development of a strategy for e-Government and integration with every reform of public administration; e-Business strategy will be developed and active measures to eliminate all obstacles for development of e-Business will be taken in cooperation with the private sector; state, school and specialty libraries will be equipped with library information system, by introducing and developing a program for digitization of cultural and historical heritage; special attention will be paid to tools of e-Participation in order to ensure complete involvement of citizens in all issues of society, including the use of ICT during election process, and thus achieve e-Democracy.

Development of appropriate policies and institutions is the key to create economy of knowledge, the base to create information society and motive to develop new technologies for integration and transformation of business processes and management. Institutional changes and innovations are necessary for right management of knowledge, information and communication processes, but also new technologies that will transform these processes fundamentally and intangibly are required. Specialized institutions and new skills require creation, browsing, acquisition, differentiation and utilization of these technologies to be synchronized with the appropriate policy reforms, investments, management innovations and political revolutions such as technology.

Information and communication technology (ICT) is dominant tool of development and it presents necessary infrastructure for the economy of knowledge. These technologies have powerful impact on each human activity, from private life to business activities and management in governments. ICT accelerates distribution of information and knowledge by eliminating geographic barriers and thus makes information and knowledge available. With appropriate initial investments, ICT barriers for market penetration are significantly reduced, but the competition is bigger. Barriers that appear have usually institutional character. Lack of institutional capacity, which is necessary to support ICT for business (development) strategies, often creates necessity for integration of ICT investments with changes in the organization, processes and skills.

Leadership is the key for economic and institutional transformation, including the ICT supported transformations. Partly, it can be formed by individual leaders. It is significantly influenced by attitudes, capacities, knowledge and experience of the leaders. They must inspire and animate strategic investments and plans, as well as ICT management and transformation processes. However, individual leaders are not sufficient. Their vision must be institutionalized, and institutional mechanisms need to be modern (in accordance with a trend that is dictated by developed countries) in order to make implementation and sustainability of these visions possible.

Currently, there is not any institutional model that different countries can follow during the process of creation of their own ICT agencies or ministries. There must exist several models; the opinion that "one model is suitable for all" seems to be irrelevant when success depends on a number of different factors, as it is the case with development of electronic services and information society in general. In addition, the level of effectiveness and intensity of the impact of alternative institutional arrangements on management and coordination of development are not determined yet.

#### 4.1. Strategic priorities

Creation of conditions for the development of information society ensures essential prerequisites for Montenegro to continue with further development as well as to integrate fully into global economy, more intense than by using any other technology. Such approach creates favourable environment not only for the development of the ICT sector, but also for rapid implementation of these solutions in other sectors, especially in the economy and civil society.

State administration should use information and communication technologies for mutual communication and services and thus enable the efficiency and transparency in relations with citizens and economy. In Strategy for Administrative Reform in Montenegro 2002-2009, information technology (IT) is recognized as one of the important factors in the process of administrative reform. It was pointed out that many aspects of the reform in general are not possible without modern information technology, which is important change catalyst and it brings great advantages in terms of raising productivity and ensuring quality of administration services. As one of the activities for implementation of Strategy of Administrative Reform, information modernization of state administration was planned. The modernization includes: (1) ensuring further development of information systems and modern assets for work, (2) preparation of special programs for technical and technological improvements in certain areas, and (3) directing the automation according to the principle "one paper."

Mentioned priorities cannot be realized without appropriate institutional framework, which would organize, encourage and assist the development of information society. Many countries may develop various institutional arrangements, by moving from one model to another, by experimenting with the existing one, but on the other hand, by creating new models. However, the fundamental choices and thoughts are similar among countries, and they are obvious from following facts:

- • *Integration in development*: Which model of institutional arrangement is necessary to promote the integration of ICT in development strategies and management? In which way should the search for new institutions be mobilized and articulated in order to make ICT strategy able to position and integrate with the development of policies and objectives?
- • *Synergy between components of e-Development*: Which organizational framework should be required or set for different elements e-Development? What type of institutional leadership and networks is necessary in order to establish synergy between e-Policies, telecommunications infrastructure, ICT literacy and human capital, ICT as a sector or central part of authority, and ICT as motivator for all sectors of the economy?
- • *Coordination in e-Government*: In what way should governments be organized to manage their own ICT supported transformations and to deal with inter-sector functions of ICT? How can technological imperatives of classical architecture development of companies be modified according to the need for improvement of agencies and ministries that need to express their requirement for ICT supported services and integrate ICT in their sector strategies? In addition, which initiatives and institutional frameworks can encourage collaboration?
- • *Centralization and discretion*: To what extent the Government should centralise or decentralise planning and decision-making concerning e-Development and ICT investments? What institutional arrangements are necessary to promote bottom up innovations and centralized measures in order to make a success? In what way should e-Leadership institutions reinforce this optimal position of e-Government?
- • *Institutional architecture and national capacities*: In what way should new e-Institutions and capacities be organized and thus be modified (or maybe transformed) according to existing political, cultural and institutional structures of the country? For example, what role should states have in the creation of knowledge economy? What type of institutional arrangements and capacity should be carried out in building effective partnership between central governments, local governments, private sector and civil society? What amount of authority and autonomy should ICT central coordination agency have?

#### 4.2. Institutional objectives up to 2013

The development of information society can endure only if there are institutions, which act as coordination bodies of e-Management and as means to enable and create a modern society. In many countries, besides authorities or bodies authorized to establish and develop information society, there are other authorities, bodies and institutions, which are authorized for certain specific segments.

E-Development institutions should be able to accomplish/perform several basic functions: (a) formulation of e-Strategy including integrated ICT strategies in overall development and business strategies; (b) policy formulation and development of legal and regulatory ICT frameworks; (c) implementation, coordination, partnerships and outsourcing of program, (d) mobilization and allocation of resources between competition and interdependent ICT investments; (e) promotion of connection, economic spread diffusion of ICT, digital literacy, local contents, innovations, achieving success and demand for e-Government services; and (f) strategic communications, monitoring and evaluation.

Realizing the need for further improvement of utilization of modern information and communication technologies, at the end of December in 2008, the Government of Montenegro founded the Ministry for Information Society. The Ministry has taken jurisdiction from Secretariat for Development over: proposing and implementation of established policy in domain of information society development, project management in domain of information society development, development, implementation and functioning of information system of state administration, etc. Formation of the Ministry created prerequisites for clear and organized coordination of information projects in Montenegro, through the implementation of large infrastructure projects, promotion of information society, etc.

#### **4.3. Legislative framework and objectives up to 2013**

For the establishment and development of information society, besides optimal organizational structure, it is necessary to create appropriate legislative framework. It is necessary to prepare regulations for several areas. In this respect, the Government of Montenegro will affect the development of modern information society by the adoption of regulations through the following objectives:

- Regulations on Telecommunications shall provide active inclusion of competent authorities in creation of open and competitive market of telecommunications, investments in that domain, and privatization of state monopolies and development of accessible infrastructure of electronic communication networks.
- Regulations that apply to the Internet shall define solutions that will allow uninterrupted exchange of information and transactions via Internet.
- Conditions for the use of electronic signatures will be made, identification and authorization of parties in the transaction will be allowed as well as operations with credit cards, and the competence over Internet transactions will be established.
- Ensure the protection of information about personality and privacy, transfer of information through international systems, cryptographic protection, and protection of users from abusive, illegal and undesirable Internet content.
- New rules will provide protection against terrorism, money laundering, protection of intellectual rights, as well as regulations governing Internet content.
- For purchasing and selling via Internet, appropriate tax mechanisms will be provided.
- Define the methods for protection of solutions for information and communication technologies and patents in order to prevent violations of copyrights and other patents established in the country and abroad.
- One of objectives is to encourage responsibility and raising awareness in order to reduce abuse of information and communication technologies.
- During entire process of creating the institutional and legislative framework, extremely important task is harmonization with EU legislation, which is the essence of every task in the process of integration into EU. Besides adoption of coordinated regulations, the system that will ensure effective implementation of these regulations will be established.

#### **5. e-Education**

In order to establish the information society, it is necessary to have highly developed infrastructure, but it is practically useless if there is no society that has information education, as from the aspect of basic information literacy so from the aspect of specialist or expert knowledge. Education is the best investment for maximum utilization of human potential.

In schools, students have to acquire basic information literacy (literacy as part of general personality culture in present time) and have tendency to use ICT. There are various types and possibilities to acquire ICT knowledge, for example through regular educational system, self-learning, learning on various organised training courses, but, certainly the best, is the cheapest and mass way - through regular educational system.

Society movements in direction of introducing information and communication technologies in all spheres of life, as well as many specific requirements of modern technologies, caused the need to adapt educational systems to such environment.

Ministry of Education and Science of Montenegro, in the last few years, has given full priority to introduction of ICT in education system. At the beginning of 2003, major project of IS education, called MEIS (Montenegrin Educational Information System), has been done, and it defined specific methods, resources and technology for the implementation of IS. Realisation of MEIS project is currently active.

Increasing values and role of ICT, in work of teachers, researches, workers, students, and ordinary citizens are primary links between Montenegro and EU developed countries, in the process of creating the information society. The process that reduces the gap between developed and developing countries, ensures access to ICT for everyone, and opens new possibilities for development, always following the economic, social, educational, political development and equality in all society spheres. Exceptionally, a sudden development of ICT requires continuous education and very flexible education system.

Introduction and use of ICT has great influence on deep structural changes, i.e. on organisation, functioning, use of time and space, and other working methods. It is not only supplement to existing systems. ICT is also very important link in the system of open lifetime learning (LLL - Life Long Learning).

Introduction of ICT in education system requires big funds, but also time, because it is impossible to provide complete computer equipment, install computer networks, and provide special training to all teachers how to use ICT, at the same time. So, gradual introduction of ICT is necessary, which far more developed countries did.

The most important element of every policy and strategy of establishing the information society is the adoption of sustainable goals that help keeping up the pace with technologically developed world through researches, creativity, cooperation, exchange of knowledge and information, and genuine commitment to reach set goals.

### **5.1. Strategic priorities**

In the process of introduction of ICT in education system and creation of e-Education, following priorities can be selected:

- Building modern educational system in Montenegro in which all students in primary and secondary schools and Universities can acquire basic information literacy that is sufficient to be included in modern information society, and specialist or expert knowledge in domain of ICT;
- Development of curricula and programs to provide inclusion of ICT in education process at all levels;
- Providing and distributing didactic e-Material and software (English learning, Matlab, etc) for as many school subject as possible;
- Introduction of an efficient information system for listing personnel and resources, monitoring of classes and evaluation, administrative and financial operations, as well as to support the quality management and assessments in education system of Montenegro;

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- Provide ICT training for employees in education system, primarily for teachers, managers, administration, etc.
- Include the educational system of Montenegro in current international ICT projects and educational networks. Harmonize ICT programs with programs of counties in region;
- Provide Internet access to all stakeholders in educational system. Also, allow students to connect interactively with local and global communities through web sites, joint projects with distant schools, etc;
- Make MREN be part of European academic networks and include academic institutions in international academic projects;
- Encourage the use of ICT in education of children with special needs;
- Connect and include ICT in process of educational system changes in order to achieve its full effect;
- Implement systems to support learning and video-conference systems in schools and faculties;
- Provide favourable conditions for students to obtain computers and cheap Internet access;
- Establish computer-student ratio of 1:8, until 2013;
- By the end of 2010, all educational institutions must be equipped with computers in accordance with set standards;
- Provide licensed software on all levels;
- Provide sustainable structure of the establishment, support and implementation of e-Education;
- Affirm and improve research and development in domain of introduction of information technologies in education system.

### 5.2. Objectives up to year 2013

Based on defined priorities, objectives that will be achieved by the year 2013 are:

**Design and amend law and subordinate regulations** - in order to form information society and coordinate legislative framework in Montenegro, certain number of acts that refer to ICT will be issued. Ministry of Education and Science will amend subordinate acts and job classification in order to establish legal and organisational support for effective implementation of e-Education in Montenegro.

**Formation of organisational structure** - in order to establish and implement this large project, as it is e-Education, effective organisational structure will be formed, which consists of: the Project Council; CIS – as a part of Ministry of Education and Science, the University and the Examination centre; school ICT coordinators (local and regional).

This organisational structure has been already established, for the most part. In a small number of schools, local coordinators have not been trained nor appointed yet. Also, regional coordinators have not been selected yet. For effective functioning and coordination of this organisational structure, Web portal of the Ministry of Education and Science has been made. In following period, activities on final establishment of complete organisational structure will be continued.

**ICT infrastructure** - Computer equipment and networks will be installed in all (remaining) mainly small primary schools, preschool institutions and primary music schools. In addition, following will be done:

- 1) Larger schools will have additional computer-equipped classroom;
- 2) Internet access will be provided in all schools;
- 3) In all cities in Montenegro, at least one school will be equipped with distance learning system, as well as the central location in the Education Department;
- 4) All higher education institutions will be connected to academic network and connection of all primary and secondary schools will be established using transversal line, as well as the connection of all other educational institutions to academic network;
- 5) Activities on legalisation of software will be continued.

**Realisation of integrated IS e-Education** - As it is mentioned in previous section, three key Information System Centres (CIS) will be more efficiently connected and those are: the Ministry of

Education and Science, the University and the Examination Centre, especially in domain of databases connection, in order to create one integrated and automated information system of education. Integrated information system of education will be also connected with the environment in order to exchange information with "Monstat", Employment Service, and Ministry for Information Society, etc.

Integrated information system of e-Education of Montenegro should be the spine of the construction of modern educational system. In this way, the information system will enable:

- Recording and almost complete automation of all processes in education at all levels to faculties, including records of resources and staff, monitoring teaching process, dealing with administrative and financial issues;
- Simple, fast and easy communication and data exchange between each sector in educational system;
- Clear and easy attain of information for all participants in education system (teachers, students and their parents, employees in the Ministry, services and centres), including the possibility to existing mobile technologies;
- Consideration of positive and negative trends in education that are based on reports of different segments of the system;
- The inclusion of e-Government concept in e-Education;
- Check and management of quality of educational system in Montenegro;
- In order to update the base in the CIS of the Ministry of Education and Science, safe MIPNET connections will be set in schools.

#### **Implementation of ICT in education process**

- During the process of reconstruction and development of educational curricula at all education levels from preschool to University, activities will be concentrated on curricula, which should be adapted to requirements of information society. The introduction of information electoral school-subjects will be continued in primary and secondary schools.
- One of very important segments is the acquisition of Didactic e-Materials and software. In this regard, the Government of Montenegro will include bigger circle of people who are interested in creation of e-Materials and software, starting from IT companies, the Institute for books and teaching resources, teachers to students. In this way, system for selection and verification of didactic e-Materials and software will be established. Due to great importance of segment, the Ministry of Education and Science has prepared a Strategy for the acquisition of didactic e-Materials and software, which was adopted by the Government.
- The ability of education system of Montenegro to incorporate information and communication technologies depends on ICT competence and training of teachers, leading structures, and administrative staff in schools. In following period, the emphasis will be on activities that will provide effective ICT training for teachers. First of all, ICT testing of teachers will be done and for candidates that failed ICT training will be provided. Portal for ICT training for teachers will be implemented and training courses via videoconference system will be organised.
- It is necessary to increase the number of students whose education is based and supported by information and communication technologies. In addition, it is necessary to increase the number of teachers and researchers in domain of ICT. For some specialist areas of strategic importance, such as, for example, the security of information systems, it is necessary to provide an efficient education system, first of all, on postgraduate and specialised studies in order to have expert staff.
- The inclusion of the academic network in GIANT - European academic network is necessary, so, regarding this, activities will be focused on integration in international academic projects such as GRID, EDUROM and international associations like EU FP7, SEELight, etc.
- Due to dynamics of structural, technological and program changes in the economy and service activities, training and education of employees can exceed the role and importance of regular schooling according to significance.
- Education, further education, qualifications and advanced qualification in domain of ICT,

have great importance for professional advanced training of adults. The most common method for education is to attend ICT training courses, after which one generally is awarded a certificate, which usually has no assessable value, except when it has international character, such as ECDL.

- There are numerous opportunities, which ICT provides, for people with various health problems. There are various types of specialized hardware and software for people with disabilities. For example, the keyboard for blind, printers for blind people, etc. Measures that should be taken in order to implement ICT in these schools are similar to ones in regular schools, with emphasis on necessary acquisition of specialized hardware and software.

## **6. Registries**

Strategy for transformation of services that are oriented towards citizens involves the transfer of often used services and services with high information feedback that are provided through electronic channels with the help of ICT, as well as securing the service providing by reengineering of business processes in accordance with needs of users. In the process of strategy implementation that is based on transformation of services, key principle will be to satisfy needs of users during redesign of business processes between public institutions and providing service to citizens and companies. Priority in this process of service transformation will not include only the transfer of available business processes to electronic channels without improvement; on the other hand, the objective is to provide these services, which will include redesigned processes that comply with needs of users, integration and simplifying where it is required, in effective, continuous, fast, transparent, reliable and integrated manner. In order to enable management of electronic services access by citizens and companies, these services will become available from one place / portal, and through multiple channels.

Providing electronic services will help create significant savings in financial resources as well as savings in time, citizens and public institutions. With effectiveness and interoperable capacities of ICT, which will be offered to public sector through service process, losses and errors will be avoided, public revenues will increase, which will result in greater satisfaction of society, and thus, transparency, reliability, measurability and participation in public administration will be significantly improved.

The base of information society and services, which will be provided for citizens and business entities, needs to be supported by the establishment of databases that include updated and reliable information, such as address books, public libraries, citizens' registries, etc.

### **6.1. Strategic priorities**

Transformation of services, which are oriented towards citizens and satisfaction of their needs, public services will be provided effectively through electronic channels. Needs and habits of users will be considered and thus improve the access to services, the use and satisfaction level. Regarding this, it is necessary to:

- Increase the number of services that function using electronic channels;
- Improve the use of services that function using electronic channels;
- Increase the level of satisfaction that services, which function using electronic channels, cause.

Services for citizens and business entities will be available 7/24 no matter what channel they prefer Citizens and companies will have access to all information they need, in one place<sup>22</sup> / Draft-Create a central registry as base for all other services;

Connect and harmonize existing registries and databases and define methods, procedures and technical solutions for using data registries; make services available not only in major urban areas, but in rural and remote areas.

### **6.2. Objectives up to year 2013**

In Europe, the progress in providing online services is being measured using complex indicator that is based on online survey of basic services, which takes into account only those services that

reach the highest interaction level.

The level of implementation of these services, i.e. interaction level of service, is being measured using four-levelled scale:

- The first level – Information level: providing online information about publicly available service;
- The Second level - Interaction: downloading of forms and applications;
- The third level - Two-way interaction: processing of forms, including authentication;
- The fourth level - Transaction: managing the process, decision making and execution (payment for service).

Most of registries and public databases in Montenegro are on the first level of interactivity. Some of services, due to security requirements, cannot be fully interactive (eg. issuance of identity cards and passports). Services that require payment can be implemented only when electronic payment methods become common.

All ministries, secretariats and agencies must have operational web sites with updated information, forms and notifications, as well as links to other useful sites. In this way, new materials will be published electronically on the site at the same time when it is published using traditional methods. E-mail must become a common way of communication for all ministries, secretariats and agencies. To achieve this, the Government of Montenegro will adopt standards concerning content and web sites presentation. In addition, quality standards for public services will be provided, including access to people with special needs.

**The concept for creation of registries will be centralisation and uniqueness.** Intention of the Government of Montenegro is to establish a system that will allow data entry at the same place of their origin and they will be stored, using online transfer, in centralised databases, which will enable instant update of data. Regarding this, the following registries will be created and improved:

*Civil status registry* - includes registries of births, citizenship, deaths and registry of marriages.

*23 / Draft Residence registry* - includes information about all categories of natural persons that are not Montenegrin citizens, but whose residence is in Montenegro.

*Central civil registry* - includes information about Montenegrin citizens and foreigners with permanent or temporary residence in Montenegro.

*Registry of students, schools and schools employees* - project MEIS (Montenegrin Educational Information System) provides complete interactivity in recording of data about students, schools and employees in educational institutions until higher education level, including transition from lower to higher grade and insight in students' marks.

Student enrolment application in higher education institutions will be done by connecting university systems, MEIS and data from the Examination centre of Montenegro.

*Record of citizens' reports submitted to the police* – online police reporting system for citizens will be established, in case they need help of the police (theft, family violence, etc) as well as system for monitoring of police actions.

*Criminal records* - includes information on persons legally sentenced to prison for at least three months.

*Registry of pledges and liens on movable property, stock and shares in companies* - objects of movable liens can be assets, equipment, automobiles, goods, precious metal and other things that bank would accept. When buying a car or other movable property, citizens will be able to check in the Registry if the car has been previously pledged as a guarantee of some other payment. The Registry will provide following services: request for registration of pledge and liens right, request for amendments to data about registered pledge and liens right, request for registration or deletion of records about a dispute and request for deletion of pledge and liens right from the Registry. This Registry can be perceived as an upgrade of the public credit registry.

*Public libraries* – include development of the universal system that allows browsing of content/catalogues as well as insight or access to the content.

*Agricultural Registries* – implementation of these registries will enable some of the following services: obtaining a decision on veterinary service, submission of loan application forms, application for obtaining incentive, entry in records of ecological producers and agricultural goods.

*Credit Bureau and Public Credit Registry* – recording of credit debts of citizens and economic entities. Credit Bureaus, in some countries, record not only debts at commercial banks, but also payments of utility services, electric power and other obligations. The intention is to provide a service for each citizen to check his credit debts.

*Registry of scientific institutions, personnel and projects* - unite University registries and data about scientific institutions in the country.

*Registry of Pension and Disability Insurance Fund* – registry of persons who have pension-disability insurance (the first phase), a list of online services should include: submission of requests for pension (old-age, early, disability, family), submission of the requests for determination of length of service, registration and cancellation insurance for employees in the system of compulsory pension insurance (the second phase).

*Registry of insured persons for the second class of pension insurance* - the opening of the second (and potentially the third) column of pension insurance, requires filing of all users who use this type of insurance. Services include registering in some of the funds, check payments and account balance of insured person.

*Registries related to the judiciary* - integrated information system for the management of court decisions, network of judges, judicial practice, etc.

*Records of the use of personal data* - contains information about who, when, why and whose personal information someone used. Records will be done in accordance with the Law on Personal Data Protection.

*Taxes* - Tax Administration Office will provide following online services: report taxes on income (for citizens), report tax on profit and value added tax for companies.

*Registry of residence* – will allow online reporting about address change of a dwelling and obtaining confirmation of residence.

*Registry of real estates* – it is one of key state registries. Its essential purpose is registration of all immovable property on the territory of Montenegro and all changes related to it, in accordance with the legislation of Montenegro, as well as providing easy access to it, for state institutions, users and the public.

*Registries of personal documents* - a system for term appointment for submitting an application for issuing a document and for obtaining feedback about the term when the document can be taken will be provided.

*Registration of motor vehicles* - the aim is to enable the submission of requests for motor vehicle registration (I phase) and prolongation of motor vehicles registration (phase II).

*Registry of economic entities* - services for registration of new business company - entrepreneur will be implemented with the highest level of interactivity.

*Submit data to MONTSTAT* – “Montstat” will enable larger online accesses to statistics and databases as well as the submission of data in electronic form. Database of municipalities, database of civil engineering, statistics database of foreign trade, database of agriculture are just some of many databases that will be available to public.

*Registry of Employment Agency* – this registry will enable applications to the records of the Employment Agency of Montenegro, services of seeking employment at the labour bureaus, applications for gaining work or business permit for foreigners, signing in and out of employees.

Implementation of the above-mentioned registries will be done in three phases: the first phase is establishment of registries, the second phase is initial data entering and scanning of existing books and the third phase is interactive online service.

## **7. e-Government**

E-Government or e-Business in public administration is presented by the use of information-communication technologies, combined with organisational changes and new skills in order to improve public services providing, increase democratic participation and involvement of public in processes of decision-making and policies creation.

The realisation of the vision of a modern administration in Montenegro, using e-Government's solutions and modules, and as a consequence of that, increased value of services for citizens and business entities, can be observed from four key aspects:

- 1) increased importance of knowledge management in administration, management and democratic processes;
- 2) focus on needs of citizens and business entities for services in public administration;
- 3) integration and understanding increased importance of the role of intermediaries in the sequence of administrative services providing, as well as in democratic processes;
- 4) the importance of interoperability of organisation, processes, resources (human and financial) and information solutions in order to provide more efficient public administration.

When all four aspects considered, the establishment of e-Government modules and solutions will be based primarily on knowledge, users' needs, distribution and connection.

### **7.1. Strategic priorities**

New development strategy in domain of e-Government aims to define priorities for further realisation and implementation of solutions for the effective creation and functioning of electronic government. Particular emphasis, while defining priorities, is put on users' satisfaction, transparency of the public administration, rationalisation of administrative procedures and the introduction of new electronic services, which will affect the creation of high-quality working mode and lives of users, and for public administration, it will ensure better relation with users.

In terms of implementation of e-Government service, special attention will be paid to improve availability of these services to citizens on the local management level. Standardised interfaces and portals for citizens will be introduced in "one-stop-shop" (all in one place) way. The following issues will be treated as minimum:

1. Complete reengineering and administrative regulation of internal processes in the Government so to make the support of electronic Government organisationally possible;
2. Achieving greater efficiency of internal processes in the Government through the introduction of basic - G2G communication system services - government to government;
3. Creation and implementation of integrated data and files management system for state bodies and institutions;
4. Implementation of the Government's portal on the Internet, which allows two-way communication with citizens and companies;
5. Construction of "Single Window <system for international traffic, which includes all control agencies and companies that are active in international trade and enables all required information to be submitted only once. Possibilities to adjust the information flow between different Single Windows in the region, with Europe and around the world are being explored, and it should be based on international standards for mutual exchange of information about international traffic;
6. Support of the Government's decision-making process through the realisation of customised systems for group decision-making support;
7. The development of internal capacities for adequate use, maintenance and further development of systems and services of electronic government;
8. Online publishing of regulations.

In addition to previously mentioned, development strategy, in the part related to the e-Government, will pay special attention to following activities:

- Creating high-quality and efficient operations;
- Open and transparent public administration functioning;
- Efficient system and personnel management in the public administration;
- Public administration that is concentrated on users.

The most significant strategic orientation of the e-Government until 2013, which follows the vision and mission of e-Government strategy, is:

**e-Government services subjected to needs of users.** Development of e-Government will correspond, in its essence, to the need for its use, and in that sense, the concept of users can be divided into three groups: 1. citizens and other individuals that require e-Government services, 2. business entities and other institutions of the private sector and 3. employees in public administration. Key mechanism for bringing the administration closer to users will be constant monitoring of their needs and level of satisfaction.

**One Stop Shop.** Development of e-Government will progress by combining information and connecting information sources with administration and e-Services in one central information point – e-Government portal. One-stop portal will provide possibilities for obtaining information about every life situations of users and information about the entire range of administrative services. In addition, one-stop access portal for help (phone number, email) will also be very important, and it will provide users with fast and high-quality assistance.

**Simplicity.** Presentation of information and e-Services to users in one place will be simple and logical. Following these directives will ensure efficient spending of time while visiting e-Government portal and information browsing.

**Standardisation.** Public administration will work as a standardised mechanism at all levels - on both state and local. This will allow users to check and confirm their rights with the same quality, speed and same media for each service on both state and local level.

**Quality.** Information obtained using e-Government portal will have high quality and reliability. In this sense, the quality of e-Services will be ensured with correct and clear results, standardised notifications and guaranteed deliveries.

**Transparency.** By using modern information and communication technologies, e-Government will enable transparent operations and procedures monitoring. User status will be available at any time, in the past, and current information about the status will be provided.

**Security.** Security of personal and other data will be laid down by law, and electronic transactions will be available at various levels. Constant implementation of security policies will build-up customers' confidence in e-Government.

**Anytime, anywhere.** One of e-Government's main advantages will be 24 hours a day functioning, every day of the year. Users themselves will decide when to use e-Government services, which will have influence on better use of time.

**Fast, efficient and cheap.** Speed service completing and speed of information delivery are very important to users. The use of modern information communication technologies and modern organisational solutions, provide rapid development of e-Government.

**Personal and for everyone.** Taking into account the requirements of users, e-Government tries to adjust its services to them, their lives and life events. To achieve this, personalized e-services and personal reporting about important issues for each individual will be provided.

**Knowledge and training.** Knowledge and training in order to use e-Government services efficiently are very important steps for its functioning. It will be necessary to establish high-quality knowledge sources and good practices to assist employees in administration, citizens and business entities to use modern services.

**Integration of the decision-making process and e-Democracy.** Consideration of needs and views of citizens, non-governmental organisations and other institutions and inclusion of all participants in e-Government are important components of e-Government. It is necessary to establish a good structure that will support democratic processes, with modern technologies, using various modules of e-Democracy such as e-Voting, e-Participation in processes of decision-making, e-Forums and e-Petitions. In the future, these initiatives will be upgraded to a degree where e-Referendums and e-Elections will be available.

The greatest challenge during realisation of projects and implementation of different solutions will

be on institutions that should implement proposed solutions, due to adoption of new working method and modernisation of business processes and due to administration reorganisation challenge.

## **7.2. Objectives up to year 2013**

Domains and activities that are important for high-quality and efficient development of e-Government, can be defined as follows:

- The development of e-Government portal with services and information for citizens and business entities, as well as, for internal administrative operations;
- The establishment of a central mechanism for monitoring of e-Government projects and e-Government action plans;
- Reliable information and communication infrastructure of state administration;
- Implementation of complex inter-sector projects (e.g. One-Stop-Shop, Central Citizens Registry, Document Management System, etc);
- Establishment and operation of infrastructure elements of e-Government (fast communication network for public administration, data centres, central modules, central registries, etc);
- Develop e-Administration to the stage where it that can be compared with other countries in the region and in the EU;
- A significant savings in public administration that will be made due to e-Services providing and inter-sector information projects;
- Inclusion of all competent experts (from the public and the private sector, from Universities, etc) in team for development of e-Government in order to improve information level and unique development of e-Government.

Regarding this, following objectives were set:

### **1. Focus public administration procedures on needs of users**

Operations of public administration will be adapted according to needs of users, by using modern communication channels and e-Government services, and all electronic services, which they need to resolve issues of various life situations, will be established. They must be simple to use and transparent, will appear as the one place, the mechanisms used for electronic identification, electronic payment services and electronic notification.

### **2. Improve the quality and efficiency of public administration functioning**

Improvement of quality and efficiency of public administration functioning, causes increase of savings. This will be achieved by faster execution of different procedures because of better access to data using registries and their connections, optimisation of the process and information technologies, and with horizontal connection between information solutions and users' training.

### **3. Increase satisfaction of customers**

Increase customers' satisfaction by providing simple, fast and cheap e-Service using appropriate measures. The system for user authorization with certification authority will be established, and it will build-up the confidence of users in modern public administration.

### **4. Elimination / reduction of administrative procedures**

Reduction of administrative procedures for business sector and citizens, such as, for example, access to data using main registries will be easier, and information and services will be available at one place, which will not include complicated procedures.

### **5. Increase of transparency of operations in the public administration**

Increase of operations transparency in the public administration from the view of citizens, as well as from the aspect of employees in administration will be done. Access to statutes and other documents will be available at any time via e-Government portal, and one point or place, where these documents can be found, will be established.

### **6. Reaching synergetic effects at all levels of public administration using e-Government**

Synergetic effects must be achieved at all levels of public administration using e-Government. They will be achieved with implementation of key projects for information and optimisation of operations, and results, which will serve both state administration and local self-government. In addition, as key issues and very important activities, the connection of all registries will proceed, as well as utilisation of same data source for needs of different e-Services.

#### **7. Include as many users in decision-making process**

Inclusion of large number of users in decision-making process is very important for the country when it comes to current issues, views and opinions on important information. It will be enabled in order to create more acceptable e-Government policies and proposals. This will be based on more opinions using e-Democracy.

#### **8. Optimising the use of funds in domain of e-Government**

Funds for e-Government can be exploited the best by joint investments in domain of IT, optimisation of operations and creation of generic solutions that can be used often.

#### **9. Reducing the barriers of human capital in administrative procedures**

The focus should be put on professional issues that will be settled with automation and information technology procedures, as well as with various trainings.

#### **10. Managing the level of e-Government's development**

The aim is to manage the level of development of e-Government in order to make e-Government in Montenegro comparative to development of the same in countries in region and in the EU. To achieve this, it is necessary to monitor development constantly, compare with development in the EU and to promote it at the same level as it is in the EU. In this regard, at the end of each year, the analysis of completed work activities in the previous year will be done, which will be a guideline for next year activities.

#### **11. Knowledge sharing and management**

In order to create environment in which e-Government services can be used, special attention will be paid to creation of knowledge base, as well as knowledge sharing in order to increase information literacy and to create a habit to live in modern environment. Special programs to increase the level of information literacy of citizens, business entities and employees in state administration will create information society, i.e. society based on knowledge. To support these objectives, promotions will be organised alongside with various educational programs, seminars, round tables, etc.

#### **12. Creation of unique information space**

Having in mind that Montenegro is small country, the objective is to enable and create an ambient in which the online public services will be used in full capacity. This will be achieved with allowing free online access to these services, giving discount and other benefits when purchasing the necessary computer equipment, placing kiosks in all cities on busy places, etc.

#### **8. e-Business and e-Banking**

E-business represents every aspect of the use of information and telecommunication technologies for the realization of any business activity and thus presents a key segment in information society development. Defining the strategic directions of its greater application brings to expansion and increase of possibilities for national economy development.

Implementation of e-Business includes such organization and promotion of business processes that will enable the most proper utilisation of modern information and communication technologies. Exchange of goods and services is followed by the exchange of information, usually via electronic transactions with regulated content and meaning. E-Business greatly consists of electronic commerce.

E-Business is necessary condition to enable the economy of Montenegro to participate in global markets by offering goods and services with expanded ability to provide products and services from world market.

With innovation and acceleration of business processes, costs are being reduced and efficiency is being increased. E-Business is an infrastructure for more superior monitoring of products and services usage, improving quality and increasing customers' satisfaction. E-Business in companies represents working environment in which development and management of knowledge are easier, and creativity and innovation increase.

Generally, E-Business improves economy network system and increases overall national competitiveness.

### **8.1. Strategic priorities**

Development of e-Business in the country is a project that has been undertaken in more sectors that are cooperating, because the process includes a wide range of technical, legal, economic and institutional issues. In e-Business development, both private and public sector should actively participate. As a rule, the private sector has leading part in technological development and practical application of e-Business, while the Government has it in: (a) the creation of appropriate environment, (b) facilitation of cooperation between e-Business initiatives that come from the private / public sector, and (c) providing support for the establishment of information society, including the preparation of general public, small and medium-sized enterprises and public sector for opportunities that new information technologies offer.

In a knowledge-based economy, the main factors of competitiveness are innovation factors, business efficiency and business sophistication. E-Business is based on established business processes, which are key prerequisites for business efficiency and business sophistication. It is necessary to redesign business processes during the implementation of e-Business in order to use the power of information and communication technologies, but business processes themselves are subjects of constant business innovations. Networking of the companies and entire economy depends on arrangement of business processes in companies and appliance of e-Business between companies.

In this way, e-Business significantly accelerates processes in economic branches and generates value among them. Electronic catalogues (goods and services) in supplying channels regulate processes, and improve utilisation of market potentials, and improve processes of customer support and development of the necessary operational knowledge. World generic models of business processes are being standardised in economic branches and thus become part of public knowledge, which should be used.

Generally, e-Business, and public knowledge are key infrastructure of the economy based on knowledge.

Strategic priorities of Montenegro regarding development of e-Business up to 2013 should be based on the following guidelines:

- The establishment of a high level of e-Business for equal participation in the Internal European Union market and participation in information society of the European Union
- It is necessary to use the power of information and communication technology as well as knowledge about arranged business processes to improve economy network and increase its competitiveness
- Improve efficiency of public sector with e-Business
- It is necessary to create a society based on knowledge, by using information communication technologies, which will support and improve the development of e-Business in the country.

By accepting the practice of e-Business, Montenegro must exploit new economic opportunities that will come, in order to:

- Promote economic growth and social development;
- Improve business efficiency and productivity; - Reduce costs of operations; - Allow domestic companies easier reintegration in European and world market.

### **8.2. Objectives up to year 2013**

Key objectives that have been identified and that will be implemented in domain of e-Business and e-Banking are:

**- Improving information and communications infrastructure and providing easier and cheaper access to these technologies**

The base of e-Business must be reliable, safe network infrastructure that is available to all, which includes improvement of quality and capacities of existing communication systems and greater use of broadband technologies. In order to achieve this, population must have and use basic information technology and companies must be equipped with technologies.

These objectives include elimination of differences concerning the possession and use of technology for electronic business, such as Northeast, village - town, healthy people - people with disabilities, etc.

Regarding this, it is possible to notice following operational objectives:

- Increase percentage of population who have and use a computer. Provide cheap access to technology, cheap and high quality training, adjust programs in schools and institutions of higher education
- Increase percentage of population that has access to the Internet and uses it
- Increase percentage of population who have broadband Internet access
- Better equip companies with computer technology
- Increase the number of companies that have access to the Internet
- Increase broadband access in companies
- Enlarge investments for research and development in the field of ICT (macro level)
- Increase the security level of information infrastructure
- Allow Internet access to all and at any place

**Promoting e-Business, raising awareness and education**

Montenegro is still not fully aware of advantages of e-Business. Basic knowledge in this domain is missing, as for individuals, employees, so as to initiators of reform processes. In this regard, the following objectives will be realised:

- Promoting and raising awareness about e-Business, which will affect the reduction of distrust in transactions in electronic environment;
- Establish the cooperation with institutions for consumers' protection and inform the public about the protection of rights in electronic environment;
- Provide access to base of public knowledge on e-Business. Establish a national portal for e-Business that will contain information about the methods used during its realisation, recommendations, examples of positive practice, information on standards, norms, digital identification, etc;
- Ensure the system for consulting support to small and medium-sized enterprises for the implementation of e-Business. In order to achieve this, centre for education and issuing of certificates to individuals and companies for consulting in domain of e-Business for small and medium-sized enterprises will be formed;
- Education of managers and employees in companies will be conducted in test centres, after which the dynamics and range of digital literacy will be defined;
- Make detailed development plans for e-business;
- Make annual reports that monitor the development of e-Business from the previous period and record exceptions and reasons for any exception from the plan.

**Reengineering of business processes**

One of the assumptions concerning the implementation of e-Business is reengineering of business processes in companies, public administration, in order to achieve dominant transition from traditional to electronic forms of business. Within this measure, the following objectives can be identified:

- Redesign, modelling and improvement of existing business processes and functions in companies and in the public sector. Within this, following measures will be taken:

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- Examine all existing business policies and plans and work on amendments and changes in accordance with the requirements of digital economy;
- Provide reengineering of business functions;
- Legal and administrative organization in accordance with the requirements of e-Business.

Regarding this, the following shall be done:

- Implement administrative and legal procedures for legal and secure use of electronic documents (e-catalogue, e-order, e-receipt, etc);
- Coordinate norms, standards, internal regulations with the requirements of e-Business in national and foreign domain and define individual ones, in accordance with the branch;
- Encourage the application of open standards and norms, in order to provide higher technological neutrality;
- Ensure the harmonisation of documentation and data for international trade (the so-called "one window approach");
- Increase the concentration of networks in company, between companies and between companies and public sector (in accordance with recommendations for the improvement of IT infrastructure);
- Companies will be given access to a number of public services (in accordance with the guidelines for e-Government);
- Availability of applications for e-Business will be improved, especially when it comes to applications based on open code;
- Percentage of computer use in business processes will be increased - in line with recommendations of e-Education development and in accordance
- Percentage of use of the Internet and other networks in business processes will be increased - in accordance with recommendations of e-Education and with recommendations in domain of IT equipment;
- The promotion of electronic markets, education and consulting service, with the assumption that the initiative was taken by companies themselves, will affect the increase of presence of companies' web sites on the Internet;
- Motivation measures will affect the increasing of the number of companies that carry out transactions via the Internet or other networks or systems. Regarding this, it will be necessary to:
  - increase the percentage of companies that receive electronic orders;
  - increase the percentage of companies that make purchases on electronic market;
  - increase the percentage of companies in which IT systems for orders or purchase management are automated and connected to the rest of the internal applications and applications from the environment, etc;
- Motivate companies for mass application of e-Business, through the award system and quality labels for the application of e-Business, tax, customs and other benefits.

### **Legal and institutional framework for e-Business**

Montenegro is facing creation of legal environment in which will be no obstacles for implementation of e-Business. Legal and institutional framework for e-Business include realisation of following objectives:

- Adaptation of laws, subordinate acts, regulations, to requirements of e-business. Within this objective, the following shall be done:
  - Review of existing laws completely (which refer to e-Business), remove all legal obstacles to its application, adjust laws among themselves and introduce laws, regulations and ordinances that are missing, make draft proposals of the Law on Amendments to existing laws, etc;
  - Modify the laws according to individual branch affiliations (in trade, health, public administration, banking, tourism, stock exchange operations, etc), in order to eliminate obstacles to the implementation of e-Business;
  - Remove the obstacles for regulations that are related to electronic business, and refer to customs, taxes, public procurements, all necessary registers (economic, population, spatial units, state institutions, etc);
- Make periodic assessments on the effects of judicial practice in domain of e-Business.

- Ensure the legal security of participants in electronic environment. In this regard, all measures necessary for normal functioning of the electronic identity of an individual and of economic entities shall be taken - compatible with recommendations of the EU and positive international practice, and simple access to and use of technologies for authentication and authorization shall be provided. Sanctions shall be defined, as well as authorities that will carry them out and ways of their execution in case of problems;
- Increase the judicial practice related to implementation of laws concerning e-Business. Personnel and administrative capacities in judicial branch shall be bigger, education in domain of judicial practice for the area of e-Business and judicial and out-of-court practice for solving problems that are related to electronic business shall be provided.

## **9. e-Health**

Health is a sector that interests equally all members of society. Its improvement and advancement are good for all citizens, since every individual has right on most appropriate and economical health service, which does not create the feeling of discomfort. Application of information and telecommunication technologies in the health care system (e-Health) improves efficiency, results and quality of medical and business processes, which certain facilities, professional staff, customers, insurance companies and country implement, in order to improve health condition of a patient. Position and role of users in that process are changing and he has a central active role instead of passive one, as it was the case before.

E-Health is of great importance for development in one country. It improves access to health care and raises the quality and effectiveness of available services. E-Health comprises (includes) applications and information and communication technologies that function in whole health sector.

E-Health tools or solutions include products, systems and services that function through simple Internet-based applications. These include tools for health authorities, providers of health services, and patients - as citizens, users of health services. They comprise of health information networks, electronic health cards, telemedicine services, personal portable communication systems, health portals, and many other tools based on telecommunication technologies intended to help prevention, diagnosis, treatment, health monitoring and healthy lifestyle management.

When combined with organizational changes and development of new skills, E-Health can provide delivery of better protection for less money with health care system oriented towards the patient

Health care is also an economic category. The introduction of e-Business prevents unjustified increase of prices for that protection, maintains quality of medical services and prevents the reduction of volume of patient's rights. This is a result of low costs of construction of independent information systems and systems for support in decision-making process, productivity growth of employees, use of the Internet, and the introduction of the model "business to business" in the chain of health care. Thanks to new model, all participants in the chain can work more efficiently, can reduce transaction costs and provide accurate information in real time.

Starting from the known fact that "one manager can be responsible only for those resources that are under his control", an information system that will be able to provide quality and timely information about resources and medical information that will enable better service of health workers is being created. This will generate conditions for greater responsibility, but also for greater independence in decision-making process and management of resources by management system and individual managers.

Having right information enables the preparation of accurate reports on the use of hospital capacities and the number of occupied beds. At the same time, treatment can be observed and the exchange of information can be checked easier. Analyses of reports enable strategic planning and clear demographic and health depiction of the nation.

Health systems in all countries are facing with enormous problems in recent years. It is necessary to adopt a reform strategy and take a series of activities in order to not to reach development, organizational and technological dead-end. Cost increase, the population who is getting older and outdated health system make constant pressure on the main actors in domain of health to implement significant changes that will improve care about patients.

Financing of each activity of entire system, and services, organisations, institutions provides resources to pay service. Today, general characteristics of health-care financing are:

1. Everyone spends more;
2. Everyone is lacking funds;
3. The rich need more;
4. The poor do not have enough;
5. Health care is used more due to ageing population;
6. Those who have insufficient funds use it mostly to insure salaries and very little for materials, equipment and medicines;
7. Despite the existence of health insurance, more and more is spent on health care “out of your own wallet”.

In Montenegro, the reform of the health system has made a progress, especially concerning primary health care. Significant attention in the process is paid to the development of information system (e-Health), which should support all activities related to the reform and ensure integration of business processes and data on the level of the primary system, as well as set bases to upgrade other parts of the system.

This also includes the development of information system that will allow consumption and usage monitoring and use of resources in all parts of the system and their comparison. In this way, the opportunity for management in health care institutions and system in general will be given, as well as quality and timely assessment of system’s condition in all segments.

### 9.1. Strategic priorities

Establish an effective, flexible, modern health information system as a support for achievement of strategic goals of Montenegrin health care system, which will satisfy the needs and interests of citizens, health professionals - service providers, management in health facilities, managers of health system and which will integrate data and business processes, allowing citizens and health professionals to go beyond administrative, organizational and time frames while searching and using information

Creating a single European information area emphasises, at the beginning, four major changes that can enable digital convergence:

- Speed;
- Rich content;
- Interoperability;
- Safety.

In this sense, the strategic priorities for the development of e-Health include:

1. Making of basic information infrastructure in health care and creation of organizational, personnel and technological preconditions for the development of information system, defining basic collection of health and social data for the establishment and management of electronic documentation about patients, which will be the base for definition of electronic health card;
2. Define security and technological standards for safe communication, management and

- storing of data in the health system (medical data);
- 3. Construction of integrated information system in health care;
- 4. Unification of all health and social information systems in a unique information system through the construction of electronic portal;

## 9.2. Objectives up to year 2013

Health has large strategic and national importance. Information technology in health care (e-Health) is an area of information society through which the health system can provide the highest added value.

E-Health solutions improve the progress in domain of health activity, provide better management, expansion of medical knowledge and help the development of health activity (medicine) founded on evidences. They are for all participants in health care: for patients so that they can find right information in the form that suits them, for health care providers to access electronic documentation of a patient, which is made at the moment of contact with a patient, for managers of health care system to prepare and use of organizational and business information.

Tools e- Health will help:

- People who have insurance – users of health care, through information prepared for them (health portals, advices on healthy lifestyles, advices and consultations via e-mail), data about electronic health card, through systems for monitoring of vital life functions at distance, etc.
- Health professionals through access to information in electronic card that is integrated according to levels of health care; the possibility of e-ordering and e-scheduling of services on higher levels; provided access to information in medical libraries; distance learning; distance consultations, etc.
- Health managers and controllers of health care system who are responsible for efficacy of health system, the exchange of clinical, organizational, economic and management information between health care organisations.
- Health system in general, through the ability to exchange various information within the system that are necessary for making administrative decisions on the strategic level.
- During the process of establishment of electronic health care in Montenegro, actual situations in this country and abroad should be realised, but we should also have in mind the possible way of development in the future. In this regard, following objectives shall be achieved:
- Modernisation of health care system by application of appropriate information networks of electronic health documentation and telemedicine technologies in sections where it has not been already done;
- Overloading of hospital staff, doctors and clients by appropriate ICT services, tools and devices, will be reduced to minimal possible extent, which will, on the other hand, stimulate health workers to use computers in order to improve the work efficiency;
- Promotion of joint efforts of the Government, health professionals, agencies and international organisations in creation of reliable, timely, high quality and accessible health care by using new electronic services and health information systems;
- Development of common information systems will improve processes of warning, monitoring and spread controlling of infectious diseases.
- Importance and significance of medical training, education and research using ICT shall be encouraged and gender equality shall be taken into account;
- Provide easy access to new knowledge in science and profession and contents with local importance in order to encourage researches in domain of health care and prevention programs;
- Encourage proper relations between citizens by offering high-quality contents about healthy lifestyles and illness prevention on the appropriate network portal;
- Respect and protect citizens' rights on privacy and protection of data about their health;
- Promote international standards for the exchange of health data;
- Health protection of vulnerable society groups, especially women and children in remote and underdeveloped areas will be improved, and the role of women as health guardians in their families and communities will be recognised.

- Activities will be concentrated on strengthening and expansion of initiative, based on ICT, for providing health and humanitarian aid in case of disasters or emergencies.

The use of ICT will enable the change of health care system that will improve public health and health care for system users, reduce costs, save money and time and provide information for technical, scientific, administrative, accounting and management purpose.

Realization of strategic objectives will be done through certain areas within projects and programs of projects. It is necessary to coordinate resources and activities in domain of administrative - technical, organizational, economic, and medical segments through the work of interdisciplinary teams.

## **10. ICT Infrastructure**

Dominant trends in domain of telecommunications are marked with integrations. A few years ago, we were working on the integration of service, but now we think much wider. The aim is the integration of applications, services and transfer. General directions of these global processes is evident in fixed network alongside with the development of commuting digital systems, common protocols, application of different transmission media, which creates the unique requirements, from access network of commutation and transmission systems to the need for "backbone" and "core" networks with large transmission capacities.

In terms of technology, modern telecommunications go in direction of further very rapid development of optical technologies (which generate possible transfer speed measured in Tb / s), intensive use of wireless technologies (which, in laboratory conditions, already exceeded the existing wired access networks), changes of telecommunication networks architecture (hierarchical structure now represents big limitation), sophisticated techniques for network management and data protection. In transmission systems and backbone of networks, there are still, without a challenger, optical systems that, by using Ethernet, SDH or DWDM, can fully satisfy needs of modern society for communication. On the physical and link levels, there are some more technologies (based on different transmission media), but they are primarily used for the implementation of access networks (DSL / Ethernet, WiFi, WiMax, GPRS, EDGE, UMTS, etc). Internet Protocol (IP) is dominant on the network level, on which the development of future telecommunication networks is based. We should particularly emphasise the concept of MPLS that combines the best features of its predecessors and offers a wide range of telecommunication services.

### **10.1. Strategic priorities**

The development of telecommunications infrastructure in the world and Europe is based on providing of conditions necessary for development of global information infrastructure, through a new generation of networks. This infrastructure allows modern new services that need to be offered by operators of mobile and fixed networks alongside with providing of already available services. From technical aspect, those are IP manageable networks, which satisfy specific requirements of operators, providers and users for all existing services with the possibility of easy upgrade.

ICT infrastructure should be based on the concept of open data network - ODN, which enables successful common operation of networks that are mutually connected. Open data network should have following characteristics:

- Open to customers - means that it does not discriminate any user group, but allows universal connection.
- Open for service providers - provides an open and accessible environment for competitive, infrastructural, service and / or intellectual interests.
- Open for changes - allows the introduction of new services for the future time.

### **10.2. Objectives up to year 2013**

Government of Montenegro will create a clear vision of the future IP backbone network of state bodies, which is of particular interest for the development of information society. The following are the most effective of several possible solutions:

- Use of telecommunication infrastructure of existing or new operators based on liberalised and non-monopolised market. The competition in fixed telecommunication infrastructure will be enabled, which will rapidly improve the offer (as it is the case in domain of mobile communications);
- Creation own telecommunications infrastructure or use the one of public companies (Electric Power Industry of Montenegro, Radio Diffuse Centre, Montenegro Railway) that are now developing, which includes big investments, personnel training and independence violation of regulators of operator's owner, which, in this case, is the country.

The network of state bodies, as a priority for development of the information society, will be realized as structure (backbone) of high performance and will be based on MPLS technology. Details (topology, technology on physical level, transmission speed, service frame, etc) will be defined only after a comprehensive consideration of information society needs, financial opportunities, market situation and necessary transmission speed. Minimal requirements, besides the use of MPLS technology, include implementation of:

- two LSR routers in Podgorica,
- one LED router in each community centre,
- multiple physical and logical rings in order to achieve required reliability,
- redundant Internet connecting,
- minimum transfer speed in the backbone network of 1Gbps.

With stimulation of liberalisation and non-monopolisation, emergence of certain number of alternative operators can be achieved, and their activities will ensure diversity of access technologies, and thus ensure the flexibility, performance and price.

Regarding demographic trends and unequal development of the country, activities related to implementation of the Universal Telecommunication Service will be initiated.

Concerning trends and situation in the sector, the intention of the Government is to stimulate the application of wireless access technologies and cable television technologies in order to eliminate the lack referring to modernisation and construction of new access networks. In this regard, the Government will define measures for stimulation of small and medium-sized enterprises, which would take part of the activities of existing operators and exploit, undoubtedly, personnel base in Montenegro.

The space for improvement of relevant Ministry personnel and position improvement of independent regulator will be provided in order to untie the local knot as soon as possible, provide access to free segments of operator's infrastructure on a commercial basis, stimulate joint use of resources, reduce time for administrative deciding on plan documentation, provide full elimination of monopolies on telecommunication market of Montenegro and use, with intent, funds that were obtained on the basis of fee for using of radiofrequencies, addresses and numbering.

## **11. Data Protection**

In the era of communication and electronic data exchange, protection of data and resources has become basic factor needed for successful functioning of any information system. Enormous technological progress made in communication technologies has its dark side: a large number of new ways for unauthorised access and abuse of data and other resources has been enabled.

The introduction of information safety in all segments of a country is a condition of creating the information society. The creation of information society, in the wider context, is not only prerequisite for inclusion of a country in international integration processes, but, above all, a way for survival of the country in the company of developed ones. Key factors of information society are state administration, economy and citizens, and the foundation of information society is confidence and security of all participants in the process of interactive electronic services and e-Business.

With the establishment of information security system and management of this system in all segments necessary for a modern country, state administration completes its function in the process of information society creation. Such function, state administration has in the traditional society. Organisation of the traditional society is based on the prevention of potential threats to society and care about the development of protective and repressive measures. In a similar way,

information security presents foundation for information society creation and organisation. With development of information security, state administration establishes preventive measures and creates organisational and technical prerequisites for complete system of protection and repressive actions in the information society. In addition, the function of country authorities is also necessary, as a strong moving force of this process, which should reach all pores of a modern society.

Researches that were done in developed countries of the European Union and the world, show that financial investments and technological achievements are not sufficient for the creation of information society and that all developed countries in recent years, are rapidly and intensively turning to information security in all segments of state and economic sectors, and to programs for development of security culture in the biggest segments of population. If we compare the experience of traditional society with modern information society, towards which we aspire, it is obvious that traditional society passed all these development phases and it is not possible to avoid them during information society development. Therefore, an adequate system of protection is minimally required condition for the survival of any solution that is based on modern technologies.

Protection of IT system, in Montenegro, is usually implemented only at basic level. Development of the protection system almost always ends with peripheral security device (firewall) and antivirus software. Systems that have fully implemented system of network segmentation, traffic control on all parameters and continuous monitoring of protection system are very rare.

One of big problems (if not the biggest) is lack of professional personnel, which could support implementation of more complex systems for data protection. In most organisations, there is no professional person who is in charged of monitoring and development of protection syst In some cases, these jobs are delegated to the existing technical workers that are already overloaded with daily administrative affairs and have no necessary knowledge or training in domain of data protection.

Generally, the problem is also lack of legal and administrative regulations, on the level of country, authorities and locally. Minimum number of organisations have done risk analysis, data classification upon confidentiality degree and defined procedures for their storage and handling.

Country authorities are currently working on some very important infrastructure projects, whose aim is improvement of work and efficiency of state institutions in certain areas: Citizens Registry Project, Integrated Tax Collection Project, Primary Health Care Project, Customs Information System Project, etc.

One of basic functionalities that is required of all of these projects is their interoperability and mutual communication: all mentioned systems will exchange data among themselves and will be greatly interdependent, after their release to work. The problem that can be noticed is lack of strategies and standards in domain of communications and protection of data in communication.

### **11.1. Strategic priorities**

Strategic priorities should be, first of all, the spread of information security in the whole country, by introducing appropriate minimal security criteria in state and public sector, as well as the development of safety culture of the widest segments of population. This process is very important, because, now, human society is going through a fundamental transformation from industrial to information society. Technologies of information era are attaining gradually all industrial and social activities and accelerating globalisation of economies. Today, building the information society is not a matter of choice, nor just one of conditions of international integration. Building of information society is primarily a condition for survival in the society of developed.

State government has fundamental part in creation of information society. The first step regarding previous, is creation of common architecture for State government's information systems through electronic state administration projects. Electronic state administration is the backbone of information society development, especially in terms of improvement of confidence and security of citizens and business sector in this kind of doing business, and confidence in state administration, which implements such modernisation. It is for this reason that modern state administration must implement, systematically, measures for information security.

Montenegro chose to enter EU and NATO. In this regard, it is necessary to coordinate projects with

recommendations and standards of EU and NATO alliances. Thus, Defence and Security entities will build their own information-communication systems to satisfy specific requirements and commitments towards partners (NATO, etc).

### **11.2. Objectives up to year 2013**

The main objective of the strategy for data protection and security is raising the level of security in all segments and achievement of optimal level. Reaching this goal is continuous process that must be implemented methodologically and that requires investments in knowledge and technology.

In order to realize set goal - creation of safe environment for the development of electronic services of e-Government and all other projects, a few basic steps that will be made are:

**Completion of law infrastructure and its implementation** - the introduction of laws that refer to this domain, and which have not been adopted yet, as well as implementation of PKI infrastructure, in accordance with the Law on Electronic Signature - Information Security Law, Law on Amendments of the Law on Electronic Signature; Law on Amendments of the Law on Electronic Commerce, Law on Protection of Privacy in Public Electronic Communications, Law on Time-stamping Authority; Creation of PKI infrastructure and its functioning.

**Creation of special team / authority that will deal with issue of data and system security** – this authority will function as coordinator and regulator in domain of data security with responsibility to: prepare documents about regulations on data protection, technical documents that define minimum set of standards for system protection, supervise the implementation of issued measures, take control over security in state bodies, etc.

**Issuing of General Regulation on data protection concerning state bodies** - in this way, the elaboration of basic elements that are defined by the Law on information security will be proposed. In addition to this, the regulation will specify main performers of activities as well as their responsibilities and obligations and measures that need to be taken in order to ensure the protection of critical data and systems will be defined.

Issuing one or more technically oriented documents, which will define minimum set of standards that must be satisfied in order to state that system is safe, shall be done - the document should treat and technically develop all aspects of data security, in accordance with ISO / IEC 27001, and on the basis of measures defined in the Regulation on data protection. Generally, the following should be included: Identification and management of data, Organization of protection system; Policies on system protection; Security on physical level; Area protection, Equipment protection; Protection organisation in domain of communication and management; Access control; Development of security structure in information systems; Data acquisition and maintaining; Managing security incidents.

**Creation of ME- CERT (Montenegro Computer Emergency Response Team)** - a national organisation whose main tasks shall be: coordination and technical assistance in case of incidents (in order to ensure security) that affect networks or systems in Montenegro, both public and commercial ones; Audit of protection system; Technical expertise in domain of system and data protection; Training of professional personnel in domain of system and data protection; Distribution of data and information that are relevant for system's security; Coordination and exchange of information with foreign authorities and organisations that are dealing with the same problem (FIRST, etc); Coordination of preventive actions in domain of protection; Elimination of problems related to computer networks safety in state bodies.

**Education of users** - This process assumes introduction of information resource users with proper way of using them, which is one of fundamental preconditions for maintenance of high level of IS protection.

In personnel education process concerning security system, two characteristic groups can be noticed:

- A group of end users of computing resources that will have basic training about safe behaviour and using of information resources;
- A group of system administrators and security engineers that will have specialised training in

domain of system protection.

Group of computer end users includes the widest range of employees who, in their everyday work, use information resources. Education of this group will be done by:

- Issuing binding measures and rules of conduct, their documentation, publishing and then informing all users about them;
- Using method of effective and quick workshops on the subject of resources security, proper use of available resources and the Internet, as well as proper behaviour in critical situations.

Group of system security administrators, engineers - designers and other professional staff represents technological basis of the entire process of improving security level. In quantitative terms, this group is several times smaller than the first one, but also several times more demanding as far as technological level of provided knowledge is concerned. Training of this group will be done in a series of speciality trainings in domain of design and administration of

## **12. Development of ICT Sector**

Information and communication technologies (ICT), as intellectual capital, today are the main initiators and carriers of the overall development of humanity, and information-communication sector is one of the most prosperous economic sectors in the world. It is now dominantly in the hands of developed countries. However, with development of the Internet, these technologies, especially software, are available in many domains and for less developed and undeveloped countries and for them there is a real chance to find their place in the broader market. Examples are showing that certain countries such as Ireland, India, Israel and others, with clearly defined state strategies, have gradually penetrated world market and each of them became globally recognised force for their ICT products.

In the process of strategic planning of future development of information society in Montenegro, it is vital to consider the importance of domestic ICT sector, its capacity and role in future creation of information society. The aim is to define the concept of future development of domestic ICT sector as an internationally competitive economic sector. Well-conceived domestic ICT economic sector can become a significant element of overall economic and social development of Montenegro. Starting from this, ICT should be treated as intellectual capital that today profiles "knowledge economy" and that will be essential realisation carrier of the majority of planned ICT projects in Montenegro. Information technologies now became business technologies, which significantly changed the position of the ICT sector in the modern world, so, in contemporary society, it presents development generator and initiator of changes, as well as one of pillars of modern developed economies.

Vision of the development of ICT sector in Montenegro is that the ICT sector, as intellectual capital, shall be the skeleton of future development and significant resource for sustainable development of Montenegrin economy. Through organised, well structured, properly positioned and distinguishable ICT sector, Montenegro will soon be recognised in the region as an area with technological progress. With strategic approach to development of this sector and its affirmation through various projects of general public importance, Montenegro would have a chance to position itself as a country with high degree of Information Society development up to 2013 and catch up with developed countries.

### **12.1. Strategic priorities**

Analyses of long-term economic growth indicate that human capital is production factor with the largest growth, and that the greatest investments return is with investments in knowledge and skills. Besides, in the economy based on knowledge diffusion and use of information and knowledge has the same significance as their creation.

Deepening economical, cultural and civilisation gap between developed and undeveloped part of the world is caused mostly by the development of ICT sector. Developed countries have well-developed ICT sector, while undeveloped or less developed countries have problems "to land that sector on its feet".

Therefore, there must be a strategic response of undeveloped. The main strategic principles should

be based on understanding of the ICT sector as a generator and catalyst of economic change, supported by intellectual capital and developed information and communication infrastructure. These principles are the best way to develop the economy of knowledge, the international competitiveness of our economy and sustainable development.

**ICT intellectual capital** - strategic priority in development of ICT sector is that the state should assist the creation of infrastructure that will enable intellectual potential in Montenegro to grow into intellectual capital that is competitive in the world. It is necessary to create legal, financial, educational, technological and ownership conditions to turn the intellectual potential into intellectual product that is competitive in the world.

**International competitiveness** - Development of ICT sector must be internationally competitive. Globalisation and European integration require open, internationally competitive economies. Montenegro has a unique opportunity, with the upcoming development projects of e-Services and with proper approach to it, to build globally competitive ICT sector and to have multiple benefits out of it.

**Sustainable development** - Development of ICT sector as development of intellectual capital in Montenegro can secure sustainable development of ICT sector. Economy of knowledge is more dynamic and more flexible in comparison to the classical and provides a chance to secure sustainable overall development of Montenegrin economy with proper investments in human resources.

## 12.2. Objectives up to year 2013

To develop ICT sector, it is necessary to examine the overall climate in society and the willingness of society to support and provide conditions for its development. This refers to readiness of institutional infrastructure, legal infrastructure, human resources, technological infrastructure, leadership and strategic thinking:

- The objective is to create a strong incentive for further development of ICT sector through dynamic partnership cooperation between ICT sector and the state. This will increase competitiveness of the sector, its power will be raised up to level of export economic branch and it will create preconditions for its dynamic sustainable development. In this way, the state will also have benefits such as cheaper consulting, cheaper and better information and business solutions, reduction of operational and administrative costs using outsourcing services and higher tax revenues due to ICT market growth. In this regard, activities will be directed to encourage and support initiatives for association of local ICT companies (cluster initiatives, etc), which will raise the quality and competitiveness of ICT services. Special attention will also be paid to initiatives that come from a company or association from ICT sector in order to affirm information technology and further development of information society.
- Term "resources" in ICT sector refers to potentials of a company and personnel. In Montenegro, there is no recorded institutional balance when it comes to ICT companies (the number, size, activities domain, etc), so the establishment of database of ICT companies will be one of objectives of further development of ICT in Montenegro.
- In Montenegro, a lot is done for the development of modern telecommunications infrastructure in previous period. When it comes to development of the ICT sector, taking specific measures in this domain will provide conditions that will enable greater competitiveness of domestic ICT sector, in terms of using and providing services of modern telecommunications infrastructure.
- In order to expand development opportunities, it is necessary to promote the use of Open Source solutions. In this respect, special measures will be taken to promote these technologies, allotment of stimulating funds, and allocation of projects that are exclusively developed based on those tools, which will, in the final phase, contribute to the reduction of operating costs of ICT system in State's economy.
- Considering that it is internationally competitive sector in domain of intellectual capital, management of projects in this area will be done in accordance with the latest concepts and standards in domain of Project Management. This applies equally to suppliers in

- domestic ICT sector, as well as to great users of ICT services, because the practice so far has shown, that project management is one of the most important factors for successful realisation of projects.
- In development of the ICT sector, it is very important to establish partnership between public and private sector. Significant support for development of ICT sector is working on projects for the public sector. Partnership also means that ICT sector should help the State to achieve defined plans and to promote information society in Montenegro. State and ICT sector will cooperate in removing business barriers that are present at all levels and especially at the level of local self-administration.
  - ICT sector requires highly educated personnel of various profiles. In domain of education, competitiveness of private educational institutions will be ensured. In this part, intensive communication between educational institutions and representatives of domestic ICT sector is significant, so that educational institutions can get feedback on necessary personnel profiles and current development programs, trends and technologies in this domain, in order to customise their educational profile according to that.
  - Special attention will be paid to promotion of ICT and information society, as well as to education of citizens and employees in the economy and state administration for ICT use, in order to significantly increase the number of users and reach the critical mass necessary for cost-effective use of ICT solutions. This will be joint task of the State and ICT sector.
  - Besides ICT education, special attention will be paid to improvement of education of ICT managers in domain of management, marketing, project management and international standards.
  - The attention will be focused on standardisation of organisation and business in ICT, both in the private sector and in state administration. Today, the application of ICT is standardised by international standards such as ECDL (European Computer Driving License), ISO 27001 for information security, ITIL (Information Technology Infrastructure Library) and ISO 20000 for IT service management (ITSM - Information Technology Service Management), ISO 9001 standards for project management (PRINCE2, etc) and standards for software development, standards for knowledge management (Knowledge Management) and others.
  - It is extremely important to examine the results of the development of information society and within it, the domestic ICT sector. In that sense, methodology for measuring achieved information society development shall be adopted, as well as methodology of readiness for the next phase of development.
  - In addition to previous, methodology for monitoring the size of ICT market on annual basis and according to sections (hardware, software, communications, services, consulting, etc) shall be adopted also for IT companies, especially for telecommunications operators.

### **13. Implementation of the Strategy**

Strategy for Information Society development in Montenegro 2013 provides a set of basic principles of the Government of Montenegro for the development of information society in Montenegro. These principles will be taken into account and transformed into the appropriate activities in the process of update and development of organisational, sector and regional development of governmental institutions.

Strategy will be implemented on the basis of annual Implementation Action Plans. Coordinator of Information Society development, in cooperation with the Government, will consider activities and projects that will be implemented in the next year, during budget definition, in accordance with proposed Action Plans. Each Action Plan will be adopted by the Government.

Implementation Plans will be realised in the form of project's development (each action plan will contain a list, descriptions, deadlines and finances for the project), in accordance with the principles defined by the Strategy for Information Society Development. Projects will be funded from the budget of Montenegro and from other sources. During definition and implementation of these projects, organisational structure defined by the Action Plan for development and implementation of IT projects in the Government of Montenegro until the end of 2008 and that was adopted in May 2008, will be used.

In order to accomplish objectives of the strategy, sector expert groups will be formed in all domains included in the strategy. Their task will be to analyze the current situation, make suggestions, in cooperation with governmental institutions, about new activities and assess the level and efficiency of Information Society development in accordance with defined objectives. On the basis of their analyses, expert groups will give suggestions about new priorities and activities in annual action plans. In addition to this, the results of analyses of realised activities point will present great inputs about in which sector more efforts should be made and what activities should be done in next period.

#### **14. Action Plan for Development and Implementation of Information Projects in Montenegro by the end of 2009**

Realising the need for further improvement of the use of modern information and communication technologies, at the end of December in 2008, the Government of Montenegro established the Ministry for Information Society. The Ministry has taken authorisations from Secretariat for Development over: Proposing and implementation of established policy in domain of information society development, project management in domain of information society development, development, implementation and functioning of information system of state administration bodies, etc. Establishment of the Ministry created prerequisites for clear and organised coordination of information projects in Montenegro, through implementation of large infrastructural projects, promotion of information society, etc.

Working program of the Ministry for Information Society in 2009, defines activities that need to be done, in order to ensure continuous development of information society. The most important activities in the first quarter are activities related to development of the Strategy for information society development in Montenegro since 2009 to 2013, and the Action Plan for realisation and implementation of information projects in 2009.

Having in mind, that the Regulation on amendments to regulations on the work organisation and method in state administration (Official Gazette of Montenegro, no. 81/08) defined that the Ministry for Information Society should perform administration tasks that refer to: proposal and implementation of defined policy in domain of information society development, project management in domain of information society development, etc, and on the basis of obligations of the Ministry for Information Society that are defined by working program for the year 2009, development of the Action Plan as a framework for further development of information projects in Montenegro has began.

Action Plan for information society development in Montenegro to the end of the year 2009, has objectives to continue the implementation of large ongoing infrastructure projects, the implementation of small projects whose effects can be relatively quickly felt by the citizens, economy and employees in state administration, as well as promotion of information society, in order to increase awareness about the necessity of the use of information and communication technologies in everyday business and life in general.

Projects for the information society development in Montenegro include a list of projects that are of national interest, that are relatively simple to implement and necessary for optimal functioning of the administration. Primarily, those are infrastructure projects that enable more efficient, effective, transparent, better, cheaper public administration functioning, and they form documentation and infrastructure platform for one country, and that represents the base and prerequisite for transition to information society.

During list formation and proposition, the attention was paid to projects, whose realisation is in progress in Montenegro and Government's plans regarding realisation of certain projects. Even though the list contains only a part of projects for information society development in Montenegro, proposed projects refer to realisation during the year 2009.

Even though ministries and other state bodies begin with realization of started and generation of new projects in accordance with adopted plans and strategies, in this Action Plan the emphasis is on projects that are especially important for overall system. All projects are divided into two categories: *fundamental projects* (such as Central Population Registry, Registry of Spatial Units,

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Justice Informational System, Registry of Economic Entities, etc), and *projects that promote information society development* (awards for best students, awards for students for their best ICT solutions, free e-mail address, etc).

Projects that are visible and manageable and whose implementation includes minor risks or risks that can be managed were proposed. Those are projects, for which exist appropriate competence and experience among companies in Montenegro, which already guarantees the speed and quality of implementation and sustainability of solutions.

Implementers of projects included in the Action Plan are relevant ministries, state authorities and other institutions. The intention is to provide the highest possible degree of feasibility for implementation and development of above mentioned projects, through coordinated approach, with maximum participation and professional support of Secretariat for Development. The estimate is that proposed model of management structure will have great importance for excellent realisation of projects.

Each proposed project is briefly presented with basic information:

- Project's name;
- Type of Project;
- Project Proposal;
- Project Benefits;
- Project Implementers;
- Deadline for Project's realization.

The list of priority projects with action plans for their implementation is given in the appendix.

PROJECT'S NAME	TYPE OF PROJECT	PROJECT PROPOSAL	PROJECT BENEFITS	PROJECT IMPLEMENTERS	DEADLINE
Central population registry	G2C and G2G	Central population registry is one of three key state registries. The basic purpose of CPR is fast and easy registration and civil registration of all data and changes related to them (registration numbers, births, marriages, deaths, nationalities, residences, etc.), in accordance with the legislation of Montenegro, as well as enabling easy access to state institutions, users and the public.	The unique base allows a fast and efficient registration of the population and all the accompanying data, and the opportunity for citizens to get all in one place, in the system of state administration, to obtain the necessary documents and establish their rights. The system would enable whole state office to get to all necessary data on the population and to manage them in domain of their jurisdiction (municipalities, public administration, health system, education, justice system, statistics, drink, tax administration, etc).	MIS, MIA	By the end of 2009
Registry of Economic Entities	G2B and G2G	Business Registry (or Registry of companies / economic entities) is one of three key state registries. Its primary purpose is a quick and easy registration of entities and registration of all data and changes related to these economic entities, in accordance with the legislation of Montenegro, as well as enabling easy access to the state institutions, users and the public. The project envisages the creation of new registry (using the existing system and database) that will maximally use all advantages of new technology, and that will make this registry one of key registries of e-administration in Montenegro.	Montenegro would have a modern registry with unique data input, that would significantly facilitate all activities related to registration and changes in the economy, give the incentive to the development of entrepreneurship and the economy in general (foreign investors to more easily be able to register the company) and provide preconditions for networking and collaboration with directories from the countries of the European Union (EBR). Citizens and the society would have an effective institution where they could use and fulfil their rights and obligations effectively, without waiting, and without undue delay and trouble. In perspective, this could be done as an on-line registration through Internet, which would significantly facilitate the registration by foreign companies and foreigners.	MIS, CC	3-6 months

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Registry of non-proprietary pledge and liens rights	G2B	Registry of non-proprietary pledge and liens rights represents the public and centrally-driven electronic database of all pledges of movable property. All records have a constitutive effect, i.e. pledge rights begin with an entry into the registry, and right on pledge have legal or natural persons who are the first to enroll their right on pledge into the registry. For each entry, positive and negative principles of publicity are applied, which means that entries are known to all. All non-proprietary pledge rights on all movable things that can be uniquely identified are entered in the registry.	Registry of non-proprietary pledge and liens rights allows a simple, safe and cheap possibility of verification. This registry sets a legal order in movable property trade and prevents possible abuses.	MIS, CC	3 months
Legal regulations register	G2G G2B	Establishment of a central electronic repository of regulations in the state, which includes all regulations from the constitution, laws, statutes, regulations, international agreements to all other relevant and at the national level important documents. Contains all regulations and their mutual connections, with chronologic order and competent institutions, etc. Documents are structured hierarchically, composed by areas and allow browsing by keywords, concepts, and nomenclature and indexation are fully in accordance with the nomenclature of the European Union. Portal would initially be intended for an electronic publication of all regulations and would be integrated in the electronic edition of the Official Gazette.	All authorities would have verified electronic database of regulations, which could be used in everyday work. State would save a lot of money that is now spent on commercial databases. Quality of decisions made in the judiciary would increase. The base could be available to all interested legal and natural persons, as well as all international institutions and foreign countries.	MIS, OGMNE	CC, 6 months
eProcurement - electronic public procurement and electronic auctions	G2G, G2B	Electronic auction and procurement is a repetitive process that includes the use of electronic devices for the presentation of improved conditions of offer (which is not necessarily just the price) by the bidder, in the case of a public procurement tender. Evaluation of bids is done automatically. The process of e-auction in the case of state administration authorities will be implemented after the initial evaluation of tenders in the classic procurement process (or e-procurement). Electronic auctions can be used for labour contracts, ordering goods or services for which, precise specification of conditions, can be defined.	E-Procurement and e-auctions need to be made in accordance with guidelines defined by the IDABC (European e-Government service -- Interoperable Delivery of European e-Government Services to public administrations, business and citizens).	MIS, DPP	2 months
The system for managing documents eDMS	G2G	Today, almost all information appear in electronic form. Government of Montenegro has already implemented a solution for maintaining the electronic sessions of Commissions, and implementation of the project of electronic Government session is expected very soon. To have an	Data, information and documents management in the business systems are imposing more and more as important issues for the efficiency and success of modern business. Information can be found in databases, on users' computers, paper documents, photographs, charts and other media, which all together must be integrated into a single system for	MIS	12 months

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		option of saving all of this data in the electronic form, in the same format to archive and to follow their course from one to the other entity in the system, it is necessary to implement a system for managing documents on the level of the entire Government.	managing documents. This system allows storage of all types of documents, regardless of the form, and an effective and safe browsing, distribution and processing.		
Establishment of certificate bodies - public private key infrastructure	G2G	To establish certificate body and infrastructure, that will deal with the issue of digital certificates for employees in the state administration and to enable the use of certificates.	Digital certificates are means for proving identity to people who communicate electronically. Digital certificates are issued by certificate bodies. Concerning that the system for managing documents will be implemented soon, as well as systems for electronic sessions of the Government, it is necessary to implement a system for identification of users.	MIS, MIA	3-4 months
eAdministration portal	G2G, G2C, G2B	e-Government portal should be developed in stages, in accordance with the levels of e-government development. With this project the first phase will be implemented, which involves creating a single portal, with all information about state administration services, in accordance with life and business situations of users. Portal will be made using so-called model 'one-stop-shop portal', which means that all information will be given in one place (life, business, etc). This portal should support the first and the second level of development, that is, to provide information about services and to enable electronic download of the necessary forms for submission of requests for services.	By creating this portal, insight into completed activities concerning e-Government's development would be enabled, all information to citizens and the economy would be provided in one place and in later stages of development, interoperability with portals in the surrounding countries will be established.	MIS	9 months
Justice informational system	G2G	Strengthening the development efficiency of administrative capacity of judiciary in Montenegro is an important goal of judicial reform. Significant place in this activity is a building a modern and according to the needs of the judiciary in Montenegro, useful system. Judicial informational system (JIS), not only must answer to the needs recognized at this time, but must contain instruments which will allow further development in terms of upgrading the existing framework, in accordance with future needs. Special issue that must be solved during realisation of the JIS is its harmonisation with other informational systems, within the project of electronic government.	The existence of such system will contribute to efficiency of state services, faster of information flow, greater savings, reducing time, etc.	MIS, MJ, SS, TS	9 months

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<p>The estimate of the condition of eAdministration in Montenegro based on the evaluation of the implementation of 20 common basic public services</p>	<p>G2G, G2B, G2C</p>	<p>EU directives stipulate the implementation of the portal, which contains 20 basic e-Government services both for citizens and for administration and the economy. Accordingly, the European Commission has developed a methodology, in 2007, which regulated a research concerning sophistication, availability, openness, etc of state administration and other similar portals.</p>	<p>To allow positioning of Montenegro by e-Administration solutions on the European scale, in comparison to other countries, using the same research methodology.</p>	<p>MIS</p>	<p>3 months</p>
<p>Montenegrin government portal</p>	<p>G2G, G2B, G2C</p>	<p>To improve the Montenegrin Government portal, so it is made in the accordance with European standards, to make it more open, interactive. Government Portal is the first place where every visitor is to come and ask information, and must be optimized for all groups of users.</p>	<p>Bigger visibility on the internet, providing services, simpler search, etc...</p>	<p>MIS, GBPR</p>	<p>4-6 months</p>
<p>System for the implementation of the EU projects</p>	<p>G2G</p>	<p>The formation and implementation of unique integrated expert system for the proposal, selection, evaluation and monitoring of projects, as well as measurements of the effects and results of projects and their comparison with the strategic guidelines. The system would be in full compliance with the IPA Project Cycle and IPA standards. Secretariat for European integration could deal with the program part of the system ("Programming of EU funds"), Ministry of Finance to manage the finances, and the Secretariat for the development could be able to host part of IT and to maintain it.</p>	<p>Government would have a unique, complete and transparent expert system proposal, selection, evaluation, implementation and monitoring of projects and spending of EU funds on projects. With this the government would prove to the domestic and international public that it is prepared for the implementation of essential reforms. Funds would be allocated and spent in accordance with the strategic priorities of Montenegro and to avoid waste and non-purpose spending of funds and any negative implications. The effects of spending the funds from the EU (and other funds such as grants, loans, etc.) would be measurable and comparable with the strategic objectives of the Government.</p>	<p>MIS, SEI</p>	<p>6-9 months</p>
<p>European integration informational system</p>	<p>G2G</p>	<p>To make web oriented solutions that can ensure adequate support to the SEI Information system</p>	<p>Adequate IT support process and accelerating the integration process, which without this support can not be done within the required deadlines</p>	<p>MIS, SEI</p>	<p>12-15 months</p>

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<p>Secure information exchange between the diplomatic consular missions and Montenegrin Ministry of Foreign Affaires</p>	<p>G2G</p>	<p>After gaining the independence of Montenegro, the need for intensive communication between the Ministry of Foreign Affairs and the diplomatic and consular representations is highly expressed. Montenegro has widely spread diplomatic-consular network (19 embassies, 6 missions in the European Union, NATO and key international organizations and the 2 general consulates), and work on the its widening is intensive. However, Montenegrin diplomats are faced with serious security risks when establishing communications. Efficient and secure communication with the Headquarter is essential for the success of their mission and realization of vital state interests. Given the character of information which will be exchanged in this way, it is necessary to ensure the highest possible level of protection.</p>	<p>By the implementation of the secure system of communication at the central location (IT centre in the MFA building) and in all diplomatic-consular representative offices, serious security risks in communication faced by the Montenegrin diplomacy would be overcome. Subjects who would participate in the project would have to guarantee the realization of the project carried out in accordance with the requirements of EU and NATO, as well as special Montenegrin legislation in the area of information security and classified data protection (Law on Secrecy data, the official gazette no.14-08, Regulation on closer conditions and manners of implementation of measures to protect classified information, the official gazette no.72-08).</p>	<p>MIS, MFA, NCA, DPCI</p>	<p>By the end of 2009.</p>
<b>INFORMATION SOCIETY PROMOTIONAL PROJECTS</b>					
<p>100 to 100 (100 computer for 100 elementary school students and the best SS in the national competitions)</p>		<p>To reward the best 100 students of primary and secondary schools who have won first three places in the state competition with notebook computers with licensed software, free internet flow in the year period.</p>	<p>By rewarding the best students with informational equipment, the increase in the use of the Internet will be affected and Internet penetration will be increased, and also new eGovernment services will find greater use.</p>	<p>MIS, MES, EC</p>	<p>2 months</p>
<p>10 prizes of 10 best IT solutions to the University of Montenegro</p>	<p>G2C</p>	<p>To organize competition for the best information solution at universities of Montenegro. This may be the competition for the best internet business plan and etc. and to reward solutions. Awards may consist of notebook computers, free wireless internet, travel to international conferences in the field of IT, a leading practice in the Montenegrin companies in the IT and etc</p>	<p>Promotion of information society, increasing awareness and use of ICT in all spheres of life, the motivation of young people</p>	<p>MIS, MES, UCG</p>	<p>10 months</p>
<p>Free e-mail address</p>	<p>G2C</p>	<p>To provide the citizens of Montenegro a free e-mail addresses registration on a .me sub-domain (as is the practice all over the world - e.g. Yahoo, Gmail, Hotmail, etc.).</p>	<p>Enabling citizens to use free e-mail address, which will be available wherever they are.</p>	<p>MIS</p>	<p>2-3 months</p>

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The establishment of eMontenegro Centre	G2C, G2B, G2G	Formation of eMontenegro Centre through the form of public-private partnership, where the founders will be the Government, the private sector (in the field of IT-a), the University and others. Through this type of centre will initiate a new informatics projects that will affect the increase in Internet penetration, involvement of citizens in all forms of electronic communication and interaction, etc.	Global recognition of Montenegro in the internet space, recognition as a state that is investing in informational knowledge, implementation of information projects, increase international penetration and etc.	MIS	6 months
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*List of abbreviations*

MIS	Ministry for Information Society
MIA	Ministry of Internal Affairs
MES	Ministry of Education and Science
MJ	Ministry of Justice
MFA	Ministry of Foreign Affairs
NSA	National Security Agency
DPCI	Directorate for Protection of Classified Information
SEI	Secretariat for European Integration
GBPR	Government Bureau for Public Relations
CC	Constitutional Court
SC	Supreme Court
EC	Examination Centre
UCG	University of Montenegro
DPP	Directorate for Public Procurement
OGMNE	Official Gazette of Montenegro
CC	Commercial Court
eAdministration	Electronic Administration
ICT	Information communication technology (information - communication)