NATIONAL STRATEGY FOR INFORMATION SOCIETY DEVELOPMENT

ACTION PLAN

REPUBLIC OF MACEDONIA

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NATIONAL STRATEGY FOR INFORMATION SOCIETY DEVELOPMENT AND ACTION PLAN OF THE REPUBLIC OF MACEDONIA

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Content

ACRONYMS

Abbreviation	Title	Web-portal
ADSL	Asymmetrical Digital Subscriber Line	
ATM	Asynchronous Transfer Mode	
CA	Certification Authority	
CIO	Chief Information Officer	
E-budget	Electronic monitoring of the Budget allocation	
E-procurement	Electronic public procurement analysis	
E-taxation	Electronic tax payment	
FR	Frame Relay	
H2H	Health-to-Health	
H2P	Health-to-Patients	
ID CARD	Identification Digital Card	
INSPIRE	Infrastructure for Spatial Information in Europe	
IP	Internet Protocol	
ISO	International Standardization Organization	http://www.iso.org
MDW	Making Decentralization Work	http://www.dai.com/work/project_detail.phpEpid=79
PKI	Public Key Infrastructure	
PMP	Point to Multi Point	
UMTS	Universal Mobile Telecommunications System	
USAID	United States Agency for International Development	http://www.usaid.org.mk
VoD	Video on Demand	
VoIP	Voice over Internet Protocol	
VPN	Virtual Private Network	
WDM	Wavelength Division Multiplexing	
Wi-Fi	Wireless Fidelity	
WiMAX	Worldwide Interoperability for Microwave Access	
WLAN	Wireless Local Area Network	
ISA	Information Society Agency	
IA	Intelligence Agency	
GIS	Geographic Information systems	

Abbreviation	Title	Web-portal
GUP	General Urban Plan	
DCIS	Directorate for Classified Information Protection	
SAGW	State Authority for Geodesic Works	
DUP	Detailed Urban Plan	
EPC	JSC Electric Power Company of Macedonia	www.esmak.com.mk
EU	European Union	www.europe.int
ICT	Information Communication Technology	
KIBS	Interbanking Clearing System	www.kibs.com.mk
CIT	Committee for Information Technology	www.kit.gov.mk
MARNET	Macedonian Academic Research Network	dns.marnet.org.mk
MASIT	Macedonian Association for Information Technology	www.masit.org.mk
MOI	Ministry of Interior	www.moi.gov.mk
MHIS	Macedonian Health Information System	
MFA	Ministry of Foreign Affairs	www.mfa.gov.mk
MD	Ministry of Defense	www.morm.gov.mk
SHSI	State Health and Sanitary Inspectorate	
SME	Small and medium enterprises	
NBRM	National Bank of Republic of Macedonia	www.nbrm.gov.mk
NCEC	National Council for Entrepreneurship and Competitiveness	
NGO	Non-Governmental Organisations - legal entities registered according to the Law on Associations of Citizens and Foundations	http://www.graganskisvet.org.mk http://www.mango.org.mk
NISP	National Information Society Policy	
UNDP	United Nations Development Programme	www.undp.org.mk
FOSIM	Foundation Open Society Institute Macedonia	www.soros.org.mk
PDIF	Pension and Disability Insurance Fund of Macedonia	www.fpiom.gov.mk
CRC	Central Registry of Citizens	

INTRODUCTION

... "An invasion of armies can be resisted. But not an idea whose time has come..."

Victor Hugo

Beginning with the National Information Society Policy (NISP) of the Republic of Macedonia through the process of preparing the Strategy for Information Society Development and the Action Plan, the urgency for rapprochement of the Republic of Macedonia towards the Information Society is promoted, entailing national engagement of all key entities in the Republic of Macedonia.

In the process of creation of the Strategy and the Action Plan we start from our reality and local environment requirements, based on realistic skills assessment, resources and potentials of all entities in the Information Society building process.

Today, the globalisation courses have divided the world in two zones: stagnation and development zone, which have a decisive impact on the position of individual countries, as well as on their subjectivity. Those countries that failed in the articulation of resources needed for the development by using modern Information Communication Technologies, will nevertheless remain in the stagnation zone, failing to keep up the pace with the modern world.

Where the Republic of Macedonia shall be in the following period, shall depend on the application and implementation of the Strategy for Information Society Development.

The process of creation of this strategic document is supported by UNDP and FOSIM through implementation of the Project for Formulation of the National Strategy on Information Technologies for Development.

The Strategy and the Action Plan have been prepared in accordance with the obligations undertaken by the Republic of Macedonia:

- Declaration accepted by Member States of the Stability Pact for Southeastern Europe, signed in Ljubljana on 4th June 2002;
- Agenda for Information Society Development for the countries of Southeast Europe, adopted in Belgrade 20th October 2002;
- Conclusions of the Ministerial Conference for Electronic Administration, Athens, 2003;
- Declaration adopted by the Assembly of the Republic of Macedonia "E-Declaration 2002, Recommendations on accelerated development of Information Society and Digital Economy in the Republic of Macedonia as national priority";
- Action Plan of the Committee for Information Technology 2003 - 2007;
- Action Plan and Declaration of the World Summit on Information Society, Geneva, 2003;
- Adopted concept for E-Government by the Government of the Republic of Macedonia, 2004.

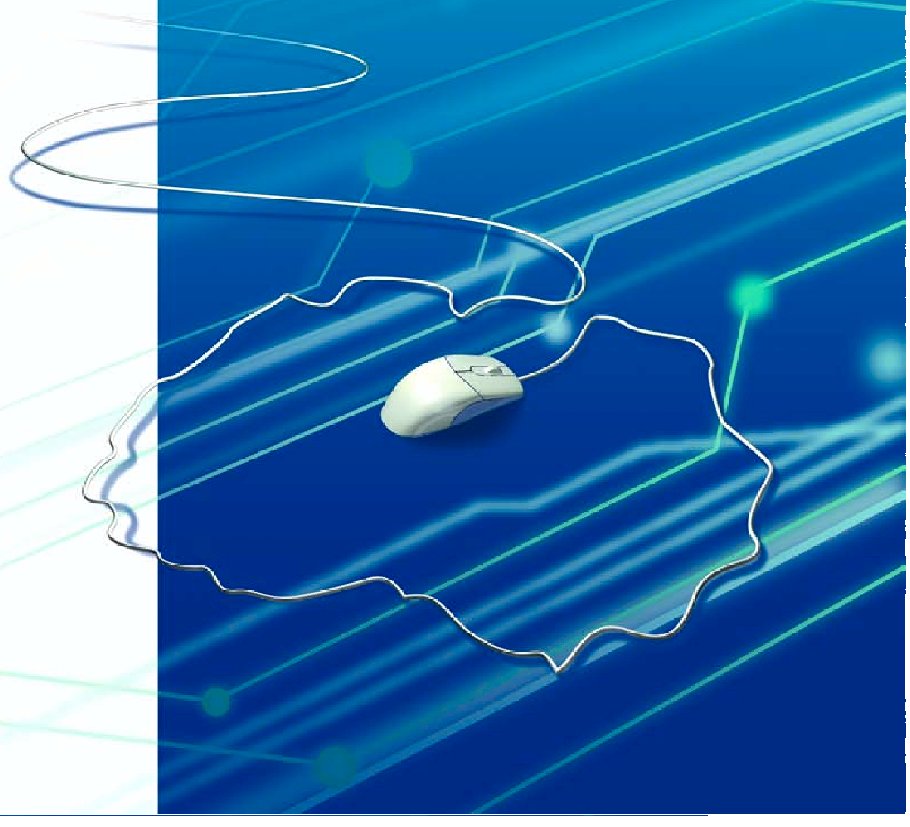
In the process of preparation of the Strategy, the following EU documents and recommendations were used:

- The Council of Europe, Lisbon Summit in March 2000, established the basic building blocks of e-Europe, a concept that represents an obligation not only for EU Member States, but also for candidate states for EU membership;
- European Commission Action Plan, eEurope+2003, and
- European Commission Action Plan eEurope2005;
- Draft Action Plan of the European Commission, i-2010.

The Strategy and the Action Plan shall be accepted and adopted by the Parliament of the Republic of Macedonia, on the basis of which the responsibilities shall be defined for all entities in the process of building the Information Society. This document shall contribute towards linking the activities in the Information and Communication Technologies (ICT) domain in the Republic of Macedonia with the programmes, projects and Structural Funds of the European Union.

According to the structure, the document consists of two components: Strategy and Action Plan for Information Society Development, whereas the Strategy comprises of the basic development directions divided in 7 pillars (Infrastructure, E-business, E-Government, E-education, E-health, E-citizen, Legislation). Each of these pillars is built around the current state of affairs, objectives, strategic measures and responsible authorities with List of Priority Projects, programmes, initiatives or pilot projects. The areas relating to Public and Private Sector Reforms are a separate part of the document, as well as the priority areas for achieving sustainability of the Strategy for Information Society Development, starting from the need of having long-term sustainability of the Information Society development in the Republic of Macedonia, where the priority areas entailing actions for achieving the objectives are defined and explained. Priority projects and defined measurable indicators are provided in the Action Plan, listed according to the same timetable of the previously stated pillars.

The Strategy should provide for efficient implementation and ICT practice for all entities in the Republic of Macedonia, through realisation of priority projects defined in the Action Plan.



1 RECOMMENDATIONS FOR INFORMATION SOCIETY DEVELOPMENT

....It is better to be roughly right than precisely wrong...

Leif Edvinsson

The key challenge in the Strategy building process is defining the economic, social and political vision of the knowledge based society, through ICT development and application in all spheres of life, thereby creating modern and efficient services for the citizens and the business community.

In order to achieve the vision and mission as defined in the NISP, the following strategic objectives are envisaged to be achieved by 2007:

- Entirely liberalised market for electronic-communication services (2005);
- Significantly increased number of Internet users;
- Established electronic public services;
- Implemented priorities for the purposes of sustainability of the Information Society Development Strategy and Action Plan;
- Revision of the Strategy in 2007 according to the EU recommendations of the Action Plan i-2010.

The basic pre-requisite is creation of a modern, easily accessible and acceptable ICT-infrastructure, available under equal and nondiscriminatory conditions through acceptable rates for Internet access and access to other electronic communication services that will enable communication between the business entities, citizens, public administration and non-Governmental sector through precisely defined protocols.

The strategy should provide a better economic development through securing improved economic efficiency, competitiveness and profitability via reorganised and improved business processes with appropriate models for e-business implementation in companies.

The e-Government concept stems from the e-Europe framework, which means that the Government should be the first one to initiate the entire process in order to demonstrate determination for implementation of the underlined concept. Efficient and transparent Government, open for co-operation with citizens - that is the concept that will provide better electronic services for the citizens and the business community, a concept that will encourage economic and social prosperity.

The process of creating a modern and flexible educational and research system, as well as of encouraging the ICT orientation in the education, science and culture is the most expensive and long-term process that shall increase the percentage of ICT literacy of citizens, simultaneously providing a continuous development of the National Academic Research Network as responsible authority of modern and efficient functioning of entities in the filed of education at national and global level.

Establishment and improvement of communications amongst entities in the Health Sector and creation of flexible environment for continuous service improvements through building electronic services for citizens with access to a significant number of information on various diseases, from a long-term perspective, may change the paradigm - people will be more informed and will use preventive means, which will contribute towards reduction of the number of ill persons.

In order to enable the citizens of the Republic of Macedonia to be factors in the Information Society, it will be necessary to create coherent policies so that all sectors will be able to offer e-services that will be unified, standardised, user-friendly, irrespective of the software platform, available for all citizens regardless of their location and social status, taking the citizens' needs into account, whilst ICT-tools shall assist the citizens in their participation in all social processes, as well as in the process of decision-making at a local and national level.

An important precondition for implementation of the strategic objectives is adoption of a legislation harmonised with the international conventions and agreements to which the Republic of Macedonia had acceded to or had ratified. It is of utmost importance that a special Law on Information Society is enacted, by which an institutional framework for founding of an Information Society Agency, an Inter-ministerial Council and a National Council will be established, as well as adoption of legislation entirely harmonised with the EU Directives related to information society and knowledge-based economy.

The CIT and the National Task Force for Information Society[1] shall continue with coordination of activities for information society building until the previously stated institutions and bodies become operational.

[1] A Task Force, established with the Project for Formulation of a National Strategy on Information Society Technologies for Development, consisting of 31 experts from Governmental institutions, the private sector, education and science, as well as the civil sector

2 DIRECTIONS

2.1 INFRASTRUCTURE

...Mind with its knowledge is the true capitalistic tool of reality. Thus in future ideas will create money, and not objects...

C. Handy

2.1.1 Current situation

The existing infrastructure in the Republic of Macedonia in general terms includes the fixed public telecommunication networks, public mobile telecommunication networks and networks offering Internet access and other telecommunication signals transmission.

The fixed public telecommunication network of AD "Makedonski Telecomunikacii" is based on 100% digital exchanges offering voice and data transmission, and a wide range of various services (voice mail, conference calls, emergency lines, 0800 lines ("green numbers"), 08xy ("blue numbers"), fixed telephony prepaid cards etc.

Since October 1997 the provision of Internet services in the Republic of Macedonia has been liberalised through awarding concessions for data transmission, so that today five major Internet Service Providers are offering Internet services. There are a total of 126,000 Internet users in the Republic of Macedonia[2].

In the Republic of Macedonia 65 CATV concessions have been awarded. Two concessions were awarded for mobile telephony; the services are offered by the operators "Cosmofon" and "Mobimak". The total number of mobile telephony users is 776,000, which is more than the number of fixed telephony users which is about 525,000[3].

Credit cards usage is considered as a privilege to a small number of citizens, and those who are credit card holders hardly ever use them for payment via Internet.

Usage and utilization of the basic communications infrastructure in the local self-Government units is at a minimal level. Out of a total of 124 mayors, e-mail was used by 44 of them, only 23 used web-addresses, which means that less than 35.4% have been using e-mail, and less than 18.6% were presented on a web-site[4].

The State Statistical Office is conducting a research on the situation regarding the Information-Communications Technologies (ICT)[5], thereby providing a more realistic picture about the part referring to the situation with the information-communication technologies and their utilisation, which will provide useful information in the creation of future development plans.

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[2] www.sei.gov.mk Sector for European Integration - Government of the Republic of Macedonia, Answers to the EC Questionnaire, referring to the part for telecommunications and information technology

[3] www.sei.gov.mk Sector for European Integration - Government of the Republic of Macedonia, Answers to the EC Questionnaire, referring to the part for telecommunications and information technology

[4] Research within the frames of the Project E-governance at a local level in the Republic of Macedonia, conducted in co-operation with UNDP, Ministry of Local Self-Government, Committee for Information Technology - CIT and CSGU (Community of the Self-Government Units), 2004

[5] Statistical ICT research conducted by the State Statistical Office in the Republic of Macedonia (ICT-1 for enterprises; ICT-2 for financial institutions; ICT-3 for households; ICT-4 for state bodies, institutions and organisations)

2.1.2 Objectives

In the Republic of Macedonia, many state institutions, the local self-Government as well as different institutes use geographic information systems - GIS-technology; however, there are neither rulebooks nor standards for creation, keeping and maintenance of GIS-data by the state institutions.

The basic activity to be implemented in the area of Infrastructure is provision of an appropriate environment for development of a modern, easily accessible and acceptable ICT infrastructure, available to all entities under equal and nondiscriminatory conditions and affordable prices. Advanced infrastructure and increased Internet usage, as well as usage of the other electronic communication services can be provided through the following:

- O1.01. acceptable prices for usage of Internet and other electronic-communications services;
- O1.02. continuous and sustainable ICT-infrastructure support;
- O1.03. Introduction of Protocol for electronic communications between business entities, citizens, public administration and non-Governmental sector.

The ICT-infrastructure is to be built around the following three pillars:

- Legal infrastructure;
- Technology and applications; and
- Human resources.

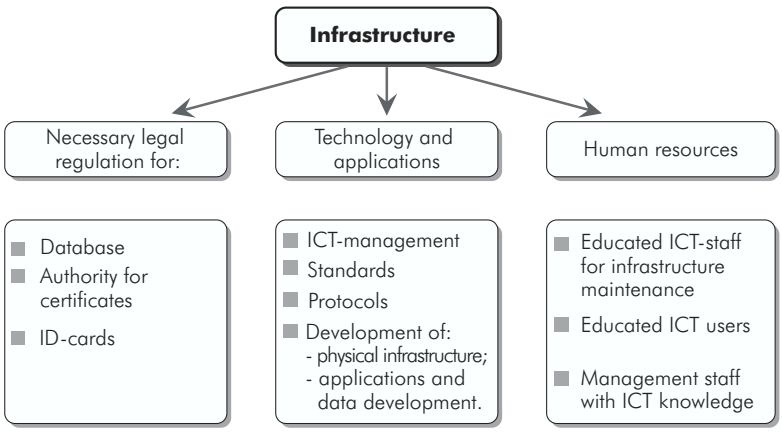


Figure No. 1 - Infrastructure pillars

The effective application of the information-communication technologies shall be based on legislation harmonised with the EU legislation. The regulation should create a suitable environment for infrastructure development, stimulate the development and application of new technologies and liberalise the market for electronic and communication services.

In connection with the infrastructure part, the legal regulation should provide the following:

- Establishment and implementation of standards and systems for electronic records, their management and archiving;
- Using a central electronic register of registries or databases (so-called register of registries);
- Building the physical telecommunications infrastructure, in compliance with the principles of transparency, efficiency and effectiveness;
- Encouraging web-services by using ID cards and PKI;
- Linking all Governmental and public institutions.

Technology and applications

In the part referring to network technologies, it is necessary to envisage the aspects of access, connectivity, security, management, upgrading, network expansion and user support.

Human resources

Apart from the technology development in infrastructure, a continuous development of the ICT-staff that manages and administers that infrastructure, is necessary. All state and local institutions should appoint a person or a team responsible for monitoring and implementation of the Strategy, for development of infrastructure and public services, for co-operation with the Information Society Agency and the other institutions responsible for implementation of the Strategy and of the projects.

There is a lack of professional managers within the institutions, who will take care of the professional upgrading of the employees, of the training and education needs, of monitoring the training success.

The management staff should be trained in order to use the information-communication technologies in its day-to-day operations, as well as to create favourable climate for greater use of technologies by the employees in their daily activities and communication.

ICT- development priorities

One of the basic priorities in the infrastructure development is the establishment of a backbone electronic communications network at the level of the Republic of Macedonia, which will connect all public and Governmental institutions. Given that infrastructure development is a long-term process, the construction of this network would be conducted in phases. According to the Action Plan, till 2007, the priority is to build a central network that will connect all ministries, Governmental institutions and agencies at a physical level, and at a level of applications, as well as for data exchange. The development of this network would be simultaneous with the development of projects from the Action Plan regarding the other pillars for e-education, e-health and e-citizens.

Infrastructure development in public and Governmental institutions should contribute towards more efficient and cost-effective services for the citizens. Application usage shall contribute to redesigning of operational processes, introduction of project management for more efficient usage of the infrastructure and the services, as well as for more efficient and transparent functioning of the public administration.

The National infrastructure development is to enable regional interconnection for the purposes of development of a regional e-business environment, and is also to provide access to services in the rural and underdeveloped areas in the country.

It is also necessary to focus the activities on the development of human and institutional capacities, in order to secure prompt and efficient methods for responding to the requests of the rapid technological development through expert and other type of training, as well as high education for achieving the necessary competencies and skills.

Infrastructure development plans in the public administration should be implemented in co-operation with the scientific institutions and Universities by using advanced technologies. Besides of the Government, MARNET should also have the leading role for this part with support of the private and public sector.

Awareness raising and dissemination of knowledge related to the opportunities and advantages from ICT usage both among the public administration employees and services, and among beneficiaries, is of utmost importance for the information society development.

2.1.3 Strategic measures and responsible authorities

The usage of information-communication technologies shall improve the quality, availability and promptness of the public administration operations related to the citizens' needs, and with that, shall increase the efficient work of the public sector institutions.

The dynamics of activities to be carried out in the infrastructure part is divided into long-term and short-term activities.

Short-term activities

The short-term activities have been covered with the Action Plan till 2007. First, it is necessary to create a favourable environment for construction of the necessary backbone infrastructure, and with that, of the information society development. This infrastructure should enable linking of Governmental institutions, which shall offer a variety of electronic services, i.e. create the necessary contents which will influence the increased Internet usage. The number of Internet users will increase if the citizens need and benefit from the electronic services usage, but also the possibility to access those services.

The development and management of this infrastructure is responsibility of the Information Society Agency in co-operation with the National and Inter-ministerial Councils.

The short-term activities include activities necessary for full market liberalisation, adoption of the necessary legal acts and secondary legislation. This particularly refers to the enforcement of obligations from the Law on Electronic Communications and the Law on Electronic Data and Electronic Signature, in the part for adoption of secondary legislation in order to provide registration of companies that have a prepared system for issuing electronic signature certificates, as accredited publishers.

It is necessary to introduce services which require usage of ID-cards (registration of cars, issuing of licences, financial transactions, personal documents, tax payment…). Each Governmental institution, on its own web-site, should offer the citizens an opportunity for electronic services which will be developed and promoted on a long-term basis, thereby increasing the number of Internet users.

Furthermore, it is necessary to initiate the operations of the Electronic Communications Agency as soon as possible, since the Agency is to act as a regulatory body on the market for electronic communications and services, whereas it is necessary for the Agency to be structured in an efficient manner in order to be able to meet the requests for regulation and coordination of the overall processes and changes in the electronic communications market.

The efficient regulation of the electronic communication market, as well as the legal regulation enforcement, shall create favourable climate for competition development, and with that, reduction of the Internet access rates, as well as quality service improvement.

Infrastructure development is to promote partnership between the public and private sector. The advantages offered by Internet are more than evident, due to which it is necessary to carry out initiatives and actions for increasing the number of Internet users. With Internet-services implementation, the local and state administration will be enabled to unburden the traditional window desks and facilitate their operations, thereby reducing the duration of administrative procedures.

In order to have a continuous infrastructure development it is necessary to keep up with the trends in the technology domain, i.e. broadband services (digital subscriber line), WDM-optic technologies, digital subscriber lines - DSL- lines, using Wi-Fi, Wi-Max, data transfer through existing protocols FR, IP, ATM, grid-infrastructure and other advanced technologies that provide service quality; increased usage of xDSL, UMTS, VoIP, VoD, VPN, WLAN and other types of technologies, as well as their implementation in projects.

The infrastructure management is a continuous process and it is necessary to take into consideration all elements for information-communication solution, such as:

- Hardware and applications development;
- Securing a budget for infrastructure expansion and upgrading;
- Introduction of standards relating to ICT;
- Infrastructure safety aspects, referring to the physical equipment and the data itself;
- Balanced infrastructure development, as well as professional development of the ICT-staff, employees and all persons using the infrastructure.

The implementation, development, maintenance and upgrading of infrastructure should be analysed from the aspect of physical infrastructure, as well as from the aspect of data and applications. Therefore, it is necessary to introduce standards, protocols, procedures that will consider these two aspects related to infrastructure, i.e. technology and applications.

In order to make e-services more effective and more efficient, it is necessary to introduce ICT-infrastructure management, which will provide consistency for the e-services and users' needs, which, on the other hand, leads to greater productivity.

ICT-infrastructure management should provide for the following:

- Designing and planning that will provide guidelines for infrastructure development and installation, and will thereby meet the needs from all aspects of a given business;
- mplementation and development according to the development plans;
- Daily infrastructure maintenance;
- Technical support - structure and support processes for guaranteeing the ICT-infrastructure provided services.

The infrastructure introduction and implementation poses high level demands regarding security, validity, quality, standardisation, connectivity etc., which, on the other hand, will have indirect impact on the increased application of advanced IT-solutions in other sectors as well.

For achieving an efficient infrastructure development, the following standards referring to the ICT-operations domain have to be adopted: ISO 12207, ISO 9126, ISO 9294, ISO 1335-5, ISO 15288, ISO17799, ISO 9001-2000. Besides of the introduction of standards, which will contribute towards common understanding between actors in the process of infrastructure development and utilisation, it is necessary to create technical-terminology vocabularies referring to the domain of information-communication technology.

Long-term activities

- Providing funds necessary for continuous infrastructure development and building, on a state level, as well as for international network interconnection.
- Long-term activities are to be coordinated with the activities and tasks of the Government regarding the EU approximation. Given that these are complex tasks, a serious and responsible approach is necessary towards creation of solutions.
- All investors performing works related to construction of infrastructure (road, railway, pipeline etc.) and facilities are obliged to provide physical space for setting up an electronic communication infrastructure.
- Introduction of mechanisms for encouraging a corporate social responsibility while building the communication infrastructure, whereby priority shall be given to projects that foresee construction of infrastructure near institutions of public interest (kindergartens, schools, hospitals, libraries, pension institutions etc.).

The legislation should not be considered as obstacle for development and introduction of new technologies; it is necessary to reduce the gap between the regulation and the new trends in technology, as well as greater flexibility of the legal framework in terms of adopting secondary legislation which will provide faster introduction of new technologies.

Responsible Authorities

The main stakeholders and responsible authorities for infrastructure development would be the following:

- Government of the Republic of Macedonia;
- MARNET;
- Ministry of Transport and Communications;
- Ministry of Interior;
- Ministry of Defence;
- Ministry of Education and Science;
- Ministry of Environment and Physical Planning;
- Scientific institutes;
- Universities;
- Information Society Agency;
- Electronic Communications Agency;
- Private sector;
- MASIT.

2.1.4 Defined projects for infrastructure

Project	Priority	Activity	Area	Responsible authorities and stakeholders
PR1.01	1	Activities for providing and increase in the use of fast and cost-effective Internet	Infrastructure C1.01	Government of Republic of Macedonia, Information Society Agency
PR1.02	1	Determining the existing capacities, planned activities in the infrastructure part in the public administration and the public enterprises and telecommunication services operators	E-Government and E-education	Information Society Agency
PR1.03	1	Design and implementation of a backbone network for the needs of the Governmental institutions, of the public administration and the private sector	E-Government, physical infrastructure	Information Society Agency
PR1.04	2	Assessing the necessary legal framework for the development of ICT-infrastructure	Legislation and e-business	Ministry of Transport and Communications
PR1.05	1	Structural changes of the Telecommunications Directorate and its transformation into Agency, with monitoring of its operations	E-Government, e-citizens, legislation, e-business	Electronic Communications Agency
PR1.06	1	Analysis for introduction of all appropriate standards connected to ICT use (data, services, infrastructure, management, security, documentation)	All pillars	Information Society Agency
PR1.07	2	Preparation of educational CD-material for using e-services	All pillars	Private sector
PR1.08	2	Defining the requirements for ICT-resources and human resources within the institutions	E-Government, e-citizens	Information Society Agency
IN1.01	2	Analysing the concession obligations with AD "Makedonski telekomunikacii" and the possibility for reallocation of the obligations in other projects	E-Government, e-citizens	Ministry of Transport and Communications
IN1.02	2	Review of all current projects and activities related to ICT at the level of the Republic of Macedonia	Legislation, infrastructure	Information Society Agency
IN1.03	2	Reducing the administrative procedures for obtaining approvals necessary for construction of infrastructure of public interest (priority projects)	Infrastructure and legislation	Information Society Agency

2.2 E-BUSINESS

…In a time of drastic change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exists…

Eric Hoffer

Electronic business stands for an innovative way of enterprise operations through active utilization of information-communication technologies and digitalization of business processes.

Business and Governments in the developed countries are already undertaking steps that will ensure their own competitiveness on the national and global market through introduction of e-business.

How fast the enterprises in the Republic of Macedonia introduce and react to changes in technology, partnership relations and relations with customers, shall be determined by their own success, and even their endurance in the contemporary business conditions.

Attracting foreign direct investments and the export increase impose, more than ever, the Macedonian enterprises to change the way of operation, increase the ICT application and actively participate in the implementation of e-business in their operation.

2.2.1 Current situation

By 31.12.2004, 165,977 business entities are registered in the Republic of Macedonia. Out of them 40,2 % are enterprises, 39,7 % are trade companies, 11,9 % are individual traders and 8,2 % others[6], out of which 56,201 enterprises are operational. 98 % of these companies are small, and 2 % are large enterprises. There is no precise information on the number of enterprises that have and use the Internet access.

More important facts characterizing the current situation in the e-business domain in the Republic of Macedonia are the following:

- Large enterprises are implementing software solutions while making efforts to digitalize their own existing business processes at an enterprise level, whilst small enterprises implement partial solutions which digitalize certain functions or parts of functions, mostly finances and accounting;
- Banks are in an initial phase of offering e-banking and providing payment transactions between banks and enterprises and between enterprises;
- The number of payment cards issued by banks has increased, however, a large part of the cards cannot be used for payment via Internet;
- The appropriate infrastructure for implementation of Public Key Infrastructure is existing, and the legislation for its support is in its final phase;
- Several Internet-based shops have been established (office equipment, wide consumption goods…);
- The new Law on Electronic Communications has adopted;

[6] Source: State Statistical Office of the Republic of Macedonia (http://www.stat.gov.mk)

- Among the Macedonian enterprises, there is a great number of partners to big international ICT-companies;
- Several Macedonian enterprises are developing business-software solutions for national and foreign markets;
- Large part of the enterprises did not reorganise and digitalise their business processes, according to the world trends and e-business standards;
- Enterprises did not define the ways for linking with their own business partners in procurement and sale;
- As regards the e-business implementation possibilities and methods, there are no information for the enterprises on the market situation;
- The coordination between banks, enterprises and the Government is at a low level in respect to which directions and activities for e-business implementation in enterprises shall be considered.

2.2.2 Objectives

The National e-business Strategy should provide guidelines for introduction of e-business that would improve the economic development by providing better economic efficiency, competitiveness and profitability through the following:

- Significantly reorganized and improved business-processes with appropriate models for e-business implementation in enterprises; and
- Electronic linking among business entities, citizens, public administration and the non-Governmental sector.

The targets to be achieved are as follows:

O2.01 - Established mechanism for electronic connection, electronic payment and e-business implementation between the enterprises and other participants in the business processes. By achieving this objective the enterprises in Macedonia would be enabled for the following: mutual electronic exchange of information, offers, orders, invoices; cost reduction, improved mutual co-operation and improved possibilities for electronic co-operation with its foreign associates.

O2.02 - Established centres in Macedonia which will assist the enterprises during the e-business implementation.
By achieving this objective the enterprises in Macedonia would be enabled for the following: obtaining information, advices and guidelines for initiating the enterprise preparation for e-business; reorganisation and restructuring of processes; e-business implementation; continuous improvement; linking with other enterprises and institutions.

O2.03 - Established continuous information system for enterprises in Macedonia about the possibilities offered by the e-business.
By achieving this objective the enterprises in Macedonia would be enabled for the following: access to e-business information, case studies of successful e-business implementation, publishing information about successes and employed possibilities.

O2.04 - E-business implementation in several enterprises in Macedonia through reorganisation and digitalisation of the internal business-processes.
By achieving this objective the enterprises in Macedonia would be enabled for the following: illustration of e-business implementation through practical examples, reduced costs, increased market competition, as well as creating a basis for continuous process improvement and market needs adjustment.

2.2.3 Strategic measures and responsible authorities

The e-business Strategy success also depends on the creation and implementation of appropriate reforms, measures and projects from the other pillars that would contribute in the process of creation of a new environment. This new environment will enable full e-business implementation in Macedonia, and will represent the basis for continuous changes and promotions.

The strategic measures to be undertaken for the purposes of successful Strategy implementation are as follows:

Appropriate e-business coverage with legislation.

The Government is soon expected to create and adopt a legislation that will precisely define the electronic signature, electronic payment, digital certificates, security infrastructure, intellectual property protection, fight against computer crime, consumer protection and other legislation necessary for appropriate e-business implementation. This legislation should be created by taking into consideration the legislation of the European Union, the USA and the UN recommendations.

Adapting the education for e-business.

The educational institutions and enterprises should create a process for joint creation of appropriate curricula, ICT-research support, two-way knowledge transfer, establishment of ICT-labs.

Appropriate and accessible infrastructure for e-business implementation.

The possibilities for wireless Internet and cable broadband Internet should be developed and accessible, in the city and rural areas, which will provide all business entities with a possibility to be actively involved in the e-business. Enterprises will be able to completely use the opportunities offered by the e-business through this infrastructure, which will minimise the infrastructure obstacles and provide more space for successful realisation of the initiatives and innovations of the enterprises for e-business.

Creating a body for monitoring and coordination of participants in the business processes for the purposes of appropriate e-business development and implementation in Macedonia.

This body would be composed of all of the stakeholders in the e-business processes and would have an active role in the development of e-business and the information society in Macedonia. Based on the available information, this body should offer corrective guidelines and proposals for new plans, measures and actions for successful coordination of the activities in the entire information society, and for achieving and complementing the objectives of the different pillars.

Appropriate and available e-banking and e-transaction methods.

Banks and other financial institutions are to extend the number of electronic services offered to the enterprises. Special emphasis is to be placed on the complete development of the electronic banking, as well as on the creation of conditions by the banks so as to strongly support the e-banking application by the enterprises.

The institutions and organisations that are to assist the enterprises in Macedonia in the process of appropriate e-business implementation will be the responsible authorities of all of the above stated activities:

- Large enterprises in Macedonia;
- Chamber of Commerce in Macedonia and other chambers;

- MASIT;
- Educational institutions;
- Financial institutions;
- Information Society Agency;
- Electronic Communications Agency;
- Government of the Republic of Macedonia;
- Administration bodies;
- Local self-Government;
- Non-Governmental organisations.

2.2.4 Defined projects

The following projects and activities have to be implemented in order to successfully achieve the objectives:

Project	Priority	Activity	Area	Responsible authorities and stakeholders
PR2.01	1	Defining standards for electronic invoice and electronic order	e- business O2.01	Chamber of Commerce of Macedonia - MASIT
PR2.02	1	Analysis of e-readiness of Macedonia for e-business	e- business O2.02 and O2.03	NSPK
PR2.03	2	Business-model development for reorganisation and digitalisation of the business-processes and e-business implementation	e- business O2.04 and O2.01	Information Society Agency, MASIT
PR2.04	2	Training for introduction of ICT and e-business in companies	e- business O2.02, O2.03 and O2.01	Entrepreneurship Agency / MASIT
PR2.05	3	E-business promotion in Macedonia	e- business O2.03	MASIT, Information Society Agency
PR2.06		Analysing the need for development of an e-business research centre	e- business O2.02 and O2.03	Universities
PR2.07		Guide for e-business implementation in small and medium enterprises (SME)	e- business O2.01 and O2.02	Universities Consultancy Body
IN2.01		Organisation and participation at forums for establishment of contacts and information exchange at a national and international level.	e- business O2.03	Information Society Agency
IN2.02		Establishment of an association / foundation of entities interested in realisation of particular projects	e- business O2.01 and O2.03	Association/ Foundation
IN2.03		Placing information for business entities in the Republic of Macedonia on the Central Registry web-site	e-business O2.03	Central Registry of Republic of Macedonia

2.3 E-GOVERNMENT

…Our mission is to support business transformation of the Government, so it can provide better and more efficient public services…

Tony Blair, May 2004

E-Government is much more than application of new modern ICT-technologies, it actually represents a fundamental transformation of the Government's manner of operation and the way the public administration is reasoning and acting, in order to create high quality services for citizens, businesses and public administration.

While shaping its own needs, the road towards e-Government requires active participation and partnership of all entities: Government, citizens and the private sector. Each responsible and democratic Government must make efforts for more efficient and more transparent administration operation, through client oriented services, achieving standards for better life-style quality, faster economic and social development.

Service users are not interested in the structure volume, type of connection and public administration organisation. The implementation of Information and Communication Technologies (ICT) as priority, will provide simple electronic services for the citizens, business and the public administration. The benefits from e-Government implementation necessarily lead towards recognition of the Information and Communication Technologies (ICT), that would provide increased communication, exchange of experiences and knowledge between all entities in the public administration, that would lead to a higher level of transparency and efficiency of the functioning of the Government, state administration bodies and local self-Government bodies.

E-Government is an expensive, long and uncertain process, the implementation of which, in case it is delayed, will be even more expensive. It is a reform process of transformation overcoming the legislative and control obstacles, financial, technological and digital divide obstacles, as well as obstacles due to resistance and conflict of interest. Lack of funds, resources and knowledge is often the case in the process of realisation of this concept. The worldwide analysis have shown that the transformation could be unsuccessful due to lack of positive energy, a large extent of knowledge, efforts, time and significant amount of funds for the purposes of creation of a favourable environment for implementation of this concept. It has to be emphasized that successful realisation requires endeavours and strong leadership from the highest state institutions.

The process of e-Government introduction should be integrated with the process of public administration reform, and it is necessary to consider the potential e-Government implementation barriers on time, in order to promptly find the appropriate solutions.

2.3.1 Current situation

The information systems in the Government and the ministries currently appear to be like isolated islands without a common basis that would link them. Parts of the Governmental institutions do not use local networks, and those that use it have special Internet connection. There is no computer

network that connects the Governmental institutions, and there is a great part of systems that were inherited and are incompatible. This type of organisation obstructs the efficient electronic data exchange between the Governmental institutions, apart from the e-mail usage, which is the only tool for electronic data exchange. The situation with the information systems in the local self-Government is at its minimum. Physical infrastructure exists in only a small part of the local self-Government. There is no possibility for any structural electronic data exchange between the Governmental institutions at the central and local level.

There is no e-Government portal, as a single place for all transactions from the citizens and the legal entities to the Government, which would replace the current filling in of forms and applications for the needed services in the Governmental institutions. There are several reasons for this, out of which the most important ones are the following: non-existence of an infrastructure that would enable secure data collection, publishing and distribution of data by the Governmental institutions, low information system management level in the institutions, as well as management information systems.

Greater part of the Governmental institutions are characterised with a low level of ICT-literacy as regards the administration employees, as well as with non-existence of a specialised ICT-staff which would implement the technical part of this concept. The ICT-equipment situation is also critical, as well as the obsoleteness of a part of the existing equipment. The basic security procedures were installed with many faults, the information system security level is unsatisfactory, and there is no standardised security infrastructure.

It is necessary to mention the different types of Internet connection, and the non-existing computer network that would link the Governmental institutions. The Internet access currently represents an individual problem for each of the institutions, because MARNET-network does not meet the institutions' needs. Such approach leads to a variety of solutions for Internet-access and to increased costs, the possibility for unauthorised access, etc.

In the Republic of Macedonia, there are many state institutions, local self-Government units and institutes that use GIS-technology, such as: the State Authority for Geodesic Works, Ministry of Defence, PE for Spatial and Urban Plans, State Statistical Office, Ministry of Agriculture, Forestry and Water Economy, Ministry of Environment and Physical Planning, AD "Electric Power Company" of Macedonia, many communal enterprises, especially water-supplying enterprises etc. There is no unified GIS-solution among the Governmental institutions which would create a unique GIS-system.

Currently, the standard for protection of the information systems and the quality level of the services provided by the Government is not being applied.

The necessary conditions for enforcement of the Law on Electronic Signature have not yet been created, and currently there is no possibility to accredit an institution as a certificate issuing authority.

According to the researches carried out within the Project e-Governance at a local level in the Republic of Macedonia, carried out in co-operation with UNDP, the Ministry of Local Self-Government, the Committee for Information Technology and the CSGU - Community of the Self-Government Units in 2004, the situation in the local self-Government is characterised with a low level of physical infrastructure, non-existence of information systems management, lack of ICT experts, minimal Internet usage and local administration employees with a minimal or zero level of ICT-literacy.

2.3.2 Objectives

Efficient and transparent Government operations that shall provide more quality electronic services for the citizens and the business-community through:

1. O3.01 participation of citizens in the information society building;
2. O3.02 satisfactory infrastructure level;
3. O3.03 legal and institutional framework for information society development;
4. O3.04 logical infrastructure for advanced ICT-solutions and network connection of Governmental institutions;
5. O3.05 electronic and online-transactions for e-Government services that encourage economic and social prosperity;
6. O3.06 increased number of ICT-experts and increased level of ICT-literacy in the public administration.

2.3.3 Strategic measures and responsible authorities

The e-Government concept could be successful only if the Government becomes aware and implements the activities in relation to the development priorities in the society, which will provide broader citizen support, facilitate the financing and reduce the costs.

In order to remove possible problems and barriers in the e-Government implementation process, it is necessary to introduce a mechanism that would periodically measure the implementation level.

The level of capability of the Government for e-Government implementation depends on the initial project financing, which would generate electronic services. It is also necessary to have a clear view of the costs, investments and assessments regarding time and methods for returning the investment.

Furthermore, the employees in the public administration will have to be capable of providing e-Government services. Besides of the need for possessing information-communication technology knowledge, it is also necessary to possess project management knowledge.

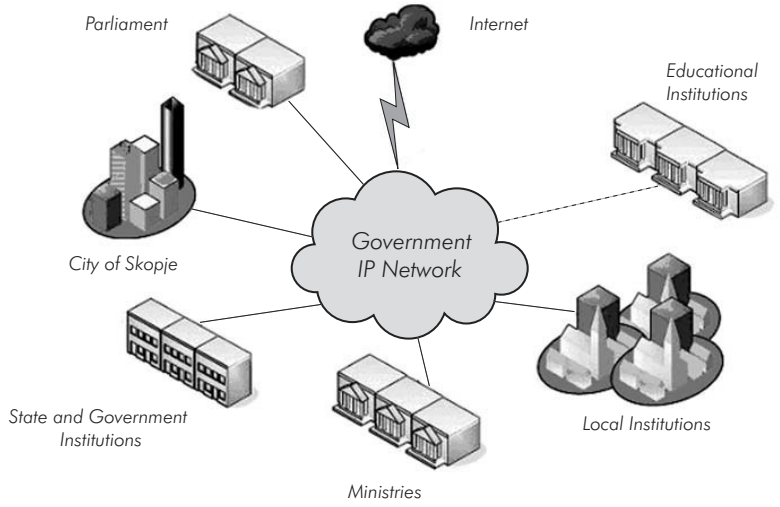


Figure No 2 - Physical infrastructure

The analysis of the strategic measure and the responsible authorities for each of the foreseen e-Government objectives is as follows:

1. Citizen participation in the Information Society building.

Citizens have a key role in the information society building process, not only as services beneficiaries, but also as participants in the process, realised through the following activities:

- Web-portal design for participation of the citizens in debates, asking questions and initiating new ideas within the frames of the local and central Government (e-democracy);
- Participation of experts in the process of proposing laws, by-laws and other initiatives through designing an e-legislation portal for attorneys, barristers, scientists and others (e-legislation).

2. Infrastructure at a satisfactory level.

In respect to the public administration (Government, state administration bodies and local self-Government units) requires conducting specific activities for ICT-infrastructure provision, that involves the following:

- Provision of advanced ICT-solution in the Governmental institutions, including ICT-hardware and software equipment and information systems;
- Provision of a single computer network for electronic data exchange between the Governmental institutions and creation of pre-requisites for confidential, secure and safe communication;
- Providing a centralised Internet access node;
- Providing a system for electronic documents exchange and management and information exchange between the Governmental institutions;
- Equipping the municipalities with ICT-equipment and connection to Internet with function of public access points;
- Introduction of fast and cost-effective Internet.

3. Legal and institutional framework for Information Society development.

The provision of a legal framework by adopting a Law on Information Society is the prerequisite for initiating the implementation of this Strategy. The Government is to encourage the Information Society development through:

- Tax relieves for electronically provided ICT-technology services;
- Stimulation measures aimed at reducing the Internet-access rate;
- Introduction of standards for information systems protection ISO 17799, as well as the ISO 9001 standards for quality of services provided by the public administration in the Republic of Macedonia;
- Adopting a national policy on information-communication security and security certification of ICT-systems for classified information;
- Security projects for institutions;
- Provision of accessibility to public information, acts, laws and documents in electronic format, accessible and free of charge for all users;
- Initiatives for creating contents that would attract the usage of on-line services by the citizens.

The public administration reform in the Republic of Macedonia should commence by:

- Decision of the Parliament of the Republic of Macedonia for introduction of ISO 9001 standard for public administration services;
- Decisions of the local self-Government councils for introduction of the ISO 9001 standard for local self-Government administration services;
- Within a period of 6 months at the most, following the adoption of decisions for introduction of the ISO 9001 standard, to adopt action plans for each institution individually, by which the level of quality of provision of services for the citizens will be raised, in accordance with the ISO 9001 standard implementation.

In order to have a successful implementation of the Strategy and the Action Plan, apart from the political consensus, the Government should be the leader in the implementation of the Strategy. In accordance with the Law on Information Society, an Information Society Agency shall be established, which, for the purposes of e-Government implementation, should realise the following activities:

- Synchronisation and coordination of ICT-projects and investments between the Government, state administration bodies and local self-Government units;
- Ensuring a quality implementation of ICT-projects;
- Encouraging local development for e-Government;
- Introduction of solutions for measuring and monitoring administration productivity;
- Introducing measurability of effects/investment return.

For the purposes of e-Government implementation, the Government will organise ICT units with adequate staff (Head of Unit and respective human resources) in each Governmental institution, and will establish a national body for information-communication security.

4. Logical infrastructure for advanced ICT-solutions and network connection between Governmental institutions.

The State should always be a guarantor for the principles of information accessibility, free information flow between the public administration entities with continuous data updating and timely submission of information to other entities, according to previously defined and accepted standards. Due to that reason, the Government will undertake activities regarding the following:

- Preparation of a study for identification of priority administration processes/procedures whereas by applying the advanced information-communication technologies the greatest improvements can be made (implementation of solutions for computerisation of processes, reorganisation and modernisation);
- Channelling and defining the specific user requests in each state administration body by methodological approach and preparation of a functional analysis for the ICT-infrastructure;
- Defining procedures and organisation for using the common existing ICT-infrastructure between the bodies of the Governmental institutions in order to provide electronic information and document exchange and to create pre-conditions for confidential, secure and safe communication;
- Defining standards and architecture for e-Government applications and services;
- Providing interoperability between the applications within the Governmental institutions and interoperability between the applications with the Governmental institutions. This does not mean defining of a unique platform for application design, but it means provision of a

recommendation for choices, unifying the Internet user interfaces and defining standards for documents, information and services exchange. The use of advanced technologies is recommended. Interoperability involves communication between the units of central and local Government;
- Providing information systems management and Government knowledge management;
- Partnership with the non-Governmental sector and the business community, which represents a key element in the process of successful implementation and achieving of efficient services. Redesigning of processes will enable the integration of new processes, on a vertical level, between the users of services and the Government, and on a horizontal level, between the state institutions.

The provision of information must be in compliance with the following principles:

- Each entity must guarantee equal options for access to information;
- To define a registry of all registries with rights and obligations for continuous updating;
- The information must be officially secured and user-friendly;
- The responsibility for public information validity must be strictly defined in order to increase the information authenticity.

5. Electronic transactions for e-Government services that encourage economic and social prosperity

The e-Government electronic transactions are offered by the Government, state administration bodies and the local self-Government units. This concept upholds the traditional methods of service provision, and it also establishes new channels through which the citizens, the business community and the other organisations will be served with faster, secure and more accessible services and information. New channels are identified through: call-centres, web-portals, one-stop shops, mobile devices, digital television, which must be integrated, web-technologies based. They include portal design for:

- Information on activities of the Government of the Republic of Macedonia;
- Preparation and managing of the Government sessions;
- Prompt information on amendments and MPs' questions;
- All existing services for the citizens and the business community;
- e-procurement system - a transparent public procurement system;
- E-taxation system - submission of data to the Public revenue Office;
- E-budget system, which would enable a transparent method of planning and monitoring of budget funds allocation;
- One-stop-shop for companies for their registration and day-to-day functioning.

Furthermore, the electronic transactions include the following:

- E-Government solutions, given that there are more mobile phone users than Internet users;
- Solutions involving geographic information systems - GIS, i.e. that process information by analysing the spatial component. With this, the INSPIRE-Initiative directives would be followed, which is proposed by the European Commission for harmonisation of non-coordinated national approaches towards creation of geographic data in the Member States of the European Union in order to unify all GIS-data sources, and to enable a unified system for access and exchange of GIS-information and data from different servers throughout Europe, created and organised by various institutions and organisations;

- Electronic signature implementation in the process of inter-institutional communication, through provision of certificate issuing authorities;
- Electronic online data delivery to the State Statistical Office (e-statistics), as well as online data dissemination from the State Statistical Office;
- Establishing a unique access to the central registry of all data bases (registries) in the state institutions;
- Introduction of ID Card as Smart Card for the citizens;
- Provision of services by the authorised institutions, by using an ID Card;
- Providing each citizen of the Republic of Macedonia with an official e-address name.surname_xxx@org.gov.mk (CRC - Central Registry of Citizens).

6. Increased number of ICT-experts and increased level of ICT-literacy in the public administration

The Government shall organise the following activities:

- Employing ICT-staff with University level education;
- Providing conditions for ICT-staff training for the latest ICT-technologies and operational management techniques;
- Providing conditions for ICT-training of the administration employees;
- Planning investments for training the public administration employees through the Civil Servants Agency;
- Providing parameters for measuring the quality of ICT-literacy of the Government officials through acceptance of world recognized standards for ICT-literacy (such as: ECDL European Computer Driving Licence; Xpert and other).

Furthermore, the current challenge is the knowledge based economy, and the Government, as the leading force, must modernised in order to meet the new challenges. There are examples of different roads towards e-Government modernisation and implementation, however, the successful examples share certain common factors, such as: determination of the Government leaders to create capable administration, team work, openness and communicability with continuous connection and usage of the information sources by applying the ICT.

e-Government responsible authorities

- Government of the Republic of Macedonia;
- ministries;
- Assembly of the Republic of Macedonia;
- universities, technological and innovation centres;
- Information Society Agency;
- Civil Servants Agency;
- municipalities and the City of Skopje;
- State Statistical Office;
- Public Revenue Office;
- Central Registry;
- KIBS;
- NBRM;
- banks;
- Chamber of Commerce of Macedonia;

- other chambers;
- MASIT;
- private sector;
- non-Governmental organisations.

2.3.4 Defined projects

Project	Priority	Activity	Area	Responsible authorities and stakeholders
PR3.01	1	Creating a web-portal for participation of citizens in the society building process (e-democracy)	E- Government O3.01	Government, General Secretariat, ministries
IN3.01	1	Government measures-initiatives for reducing the tax for IT-technology web (software) services	E- Government O3.03	Government
PR3.02	1	Defining standards and architecture for e-Government applications and pilot-projects	E- Government, Infrastructure O3.05	Government, CIT
PR3.03	1	Provision of a unique programme for electronic document & workflow management	E- Government O3.02	Government, CIT
PR3.04	1	Project - Provision of access to free of charge information regarding all laws and legal documents	E- Government O3.03	Government
PR3.05	1	ID Card introduction	E- Government O3.06	Ministry of Interior
PR3.06	1	Web-portal design for all existing services for the citizens and the business community	E- Government O3.06	Government, General Secretariat, ministries
PR3.07	1	Employment and training of ICT-staff in the state administration	O3.06	Government, ministries
PR3.08	1	Training and certification for ICT literacy of the civil service	E- Government, E-education. O3.06	Government, local self-Government
PR3.09	1	Designing a portal of the Government of the Republic of Macedonia	E- Government O3.06	Government, General Secretariat, ministries
PR3.10	1	Equipping the municipalities with at least three computers and continuous Internet connection for public access	E- Government O3.02	Government, Local self-Government

Project	Priority	Activity	Area	Responsible authorities and stakeholders
IN3.02	1	Initiatives for encouraging the Internet services use and content design	E- Government O3.03	Government, CIT
PR3.11	1	Project-analysis of user requests for each civil service body, redesign and reorganisation of the existing procedures in the functioning of the civil service	E- Government O3.05	Government, General Secretariat, ministries
PR3.12	1	Preparation and managing of the Government sessions	E- Government O3.06	Government, General Secretariat
PR3.13	1	Prompt information on amendments and MPs' questions	E- Government O3.06	Government, General Secretariat
PR3.14	2	E-legislation web site design for proposals and comments on laws and other regulations (e-legislation)	E- Government, E-citizens O3.01	NGO
PR3.15	2	Setting up physical infrastructure among the state institutions and Internet access	E- Government, infrastructure O3.02	Government, ministries, local self-Government
PR3.16	2	Building a logical infrastructure among the state institutions	E- Government, infrastructure O3.02	Government, ministries, local self-Government
PR3.17	2	E-procurement-system	E- Government O3.06	Government, Ministry of Finance
PR3.18	2	Monitoring of the harmonisation of the national with the EU legislation	E- Government O3.03	Government, General Secretariat
PR3.19	2	Electronic online data delivery to the State Statistical Office (e-Statistics)	E- Government O3.06	Government, CIT, ministries
PR3.20	2	Electronic online data dissemination from the State Statistical Office	E- Government O3.06	Government, CIT, ministries
PR3.21	2	One stop shop for registration of companies	E- Government O3.06	Central Registry
PR3.22	2	E-taxation system	E- Government O3.06	Government, Ministry of Finance
PR3.23	2	E-budget system	E- Government O3.06	Government, Ministry of Finance
PR3.24	3	Project - Measuring the level of quality of ICT-literacy	E- Government O3.06	Government, ministries
PR3.25	3	Creating a registry of all databases (registries) in the state institutions - central registries	E- Government O3.06	Government, CIT, ministries

Project	Priority	Activity	Area	Responsible authorities and stakeholders
PR3.26	3	E-Government-solutions	E- Government O3.06	Government
PR3.27	3	Introduction of standards for information systems protection ISO 17799	E- Government O3.03	Government, ministries
PR3.28	3	Defining standards for minimal ICT-infrastructure	E- Government O3.02	Government
PR3.29	3	Project - Introducing the ISO 9001 standard for quality of the Government services	E- Government O3.03	Government, CIT
PR3.30	4	Project - Providing the citizens with an official e-address	E- Government O3.06	Government, MOI
PR3.31	4	Geographic information system - GIS	E- Government O3.06	Cadastre
PR3.32	4	Possibilities for exchange of data created within (or for) individual state institutions and bodies with other institutions in the state- INSPIRE-initiative	E- Government O3.06	Government, ministries
PR3.33	4	Standardisation in the preparation of a data model for urban plans (GUP and DUP)	E- Government O3.06	Cadastre
PR3.34	4	Digital integrated cadastre of the Republic of Macedonia	E- Government O3.06	Cadastre
PR3.35	4	GIS - web-portal of the available state land	E- Government O3.06	The Government
PR3.36	4	Protection of natural resources, environment and national natural treasures through designing a GIS-data base	E- Government O3.06	Government, ministries
PR3.37		Projects for the Ministry of Interior and the security services	E- Government O3.03	MBP
PR3.38		Adoption of a National Policy for Information-Communication Security	E- Government O3.03	Directorate for Classified Information Protection
PR3.39		Security certification of information-communication systems for processing classified information	E- Government O3.03	Directorate for Classified Information Protection
PR3.40		Establishment of a Body for Information-Communication Security	E- Government O3.04	The Government
PR3.41		Social protection information system implementation	E- Government O3.03	Ministry of labor and social policy, Social Welfare Centers

2.4 E- EDUCATION

... We are drowning in information,
but still we are hungry for knowledge...

John Nesbit

The current concept of knowledge based society increseases the need of professionals who, besides the needed expertise in certain field, posses good communication and social skills, are well informed, always ready to learn and are in position to manage the new situations.

Necessary preconditions for successful participation in the knowledge based society are the transformation of the educational piramide and creative use of the acquired knowledge and expertise, having also the ability to create original solutions. Therefore, the education has a central place as an indisputable key towards sustainable development, quality and competition. In this context the e-education is a new form of education focusing on the student. The innovative use of the information and communication technologies will improve the traditional system of learning by essential transformation of the curricula and the way of learning and will eliminate the boundaries among the student and the teacher and the school, the home and the place of work. This form of education is to enable skills and capacities in order to be able to function better in the modern world having global perspectives and broadmindedness.

The distance learning system, the e-learning, the lifelong learning and other flexible forms of learning, as well as the possibility of development and presentation of multimedia and multilingual contents are just some of the examples illustrating the place of the information and communication technologies in the new e-education.

2.4.1 Current Situation

The use of the ICT (Information and Communication Technologies) in the education, science and culture in the Republic of Macedonia is at a unsatisfactory low level particularly in comparison with the developed countries in the European Union. This kind of situation is due to the lack of sufficient ICT equipment in the appropriate institutions. The larger number of the primary and high schools is neither connected to the Internet nor to any other intranet for exchange of information. Moreover, the situation is similar with the cultural institutions as well. The universities have common infrastructure and are connected to the Internet that is still on a very low level as regards the European Union standards and with the similar institutions in the wider environment.

In the existing educational structure in the Republic of Macedonia the information curricula are present neither at the appropriate level nor in the appropriate form. Moreover, there is no specialised faculty profiling experts in the area of the information technologies. It is evident that such structure of the educational system is not in a position of "producing" ICT staff with higher education, as well as other profiles of ICT professionals that are to be responsible for the introduction and the use of the ICT in the society. There are no certificate accreditation systems for ICT programmes and there is no impetus for their use.

The ICT knowledge among the teaching staff is also insufficient. The number of teachers using the information and communication technologies is very small, while the number of those using the ICT in the process of implementation of the curricula is just symbolical. The main reason is that the curricula are not adapted to the information technology and lack of the vision for the potentials of the transformations that the new technologies can promote in the education system at all.

In order to be able to create a knowledge based society, the education has to change and adopt. The use of the ICT in the educational process is also identified in the National Programme for

the Development of the Education in the Republic of Macedonia 2005-2015 as a precondition for the improvement of the efficiency in the education. Nonetheless, there is no comprehensive and essential analysis on the ICT importance and potentials in all areas of the educational process, and in particular regarding the ICT as the moving force of the transformations in the education through its overall integration in the educational system.

Currently there is neither an easily accessible, consistent and detailed source of information for all the ICT elements in the education in the Republic of Macedonia, nor access to the outcomes of the numerous activities and investments in this area up to date.

The aim of the part of the National Strategy regarding the e-education is to provide an answer to the challenges for development in this area - harmonised and aligned with the contemporary trends and standards in the European Union.

2.4.2 Objectives

The increased technological literacy, starting from the educational environment, shall transform the educational system, the results of which shall be productive citizens in the process of successful integration in the global information society.

The realisation of the objectives of the National Strategy in the area of e-education is to contain several coordinated and mutually aligned activities as a precondition for their successful realisation:

1. Standards: a procedure of defining national and international standards in the area of e-education and harmonization of the standards with the practices and the recommendations of the European Union;
2. Legal regulation: establishment and adoption of the necessary legal framework for realisation of the necessary activities;
3. Marketing and quality control: establishing and conducting a successful marketing campaign for all the activities and monitoring the quality of their realisation.

   The definition of the strategy in the area of e-education and its success is greatly dependent on the realisation of the strategies in the other ICT pillars, as well as on the realisation of certain preconditions.

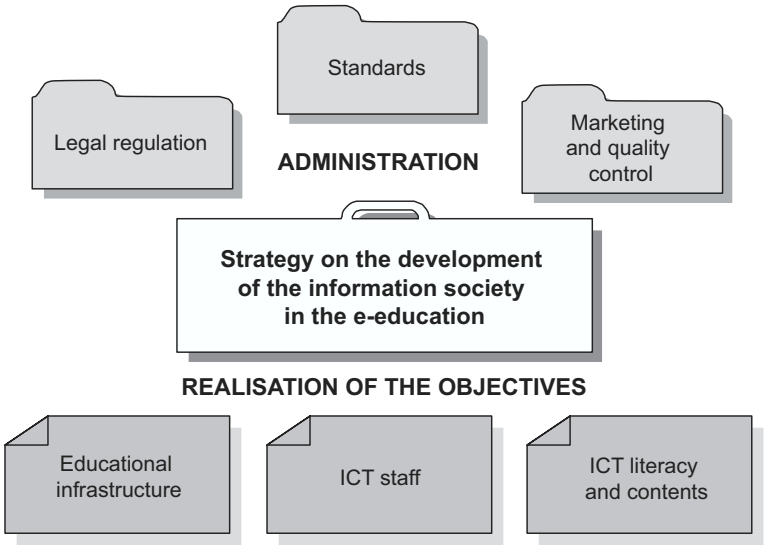


Figure no.3 - Preconditions and objectives of the e-education Strategy

The objectives of the National Strategy for Information Society Development in the area of e-education are grouped in three groups: educational infrastructure, ICT staff and ICT literacy and contents. The realisation of the defined objectives for each of the groups will be performed by focusing on specific areas and activities.

Objectives in the area of the educational infrastructure:

O.1. Better connection of the entities in the area of education, science and culture;
O.2. Increase and standardisation of hardware and software equipment among the relevant entities in the area of education, science and culture;
O.3. Fast and cost-effective access to Internet for all legal and natural entities participating in the educational process;
O.4. Development of management information system for education;
O.5. Creation and support of the existing research and innovation centres and technology transfer centres;
O.6. Introduction of e-technologies certification centres.

Objectives in the area of ICT staff:

O.7. Overview of the ICT presence in the primary and secondary school education;
O.8. Promotion of the ICT contents in the primary and secondary school education, curricula and profiling of the staff;
O.9. Distance learning systems, e-learning, lifelong learning and flexible way of learning by using ICT;
O.10. Coordination and promotion of the ICT education in the higher education institutions, specialised faculties and ICT curricula;
O.11. Diminishing of the brain-drain of the newly educated staff;

Objectives in the area of ICT literacy and contents:

O.12. Adjustment of the civil education with the aim of educating the citizens to use the e-services;
O.13. Provision of acquiring continuous digital literacy (ICT literacy) for all, by adapting to certain professional needs;
O.14. Introduction of national and foreign certificates for acquired ICT knowledge;
O.15. Publishing ICT literature in standard and multimedia format;
O.16. Creation and use of information in electronic form - library stocks also in the areas related to the education: research institutions, museums and cultural institutions and provision of virtual working environments.

2.4.3 Strategic measures and responsible authorities

Entities and responsible authorities for implementation of activities

In order to have a successful implementation of the National Strategy, coordination and participation of all relevant entities in the field of education is necessary. In the process of realisation of the given tasks these entities will be the primary responsible authorities and/or objects for the activities to be defined:

- Ministry of Education and Science;
- Primary schools and high schools;
- Universities, faculties and other institutions that provide a high-level education;
- MASA (Macedonian Academy of Science and Arts);

- Research centres and institutes;
- MARNET (Macedonian Academic and Research Network);
- NUL (National University Library);
- District libraries;
- Museum of Macedonia and district museums;
- National technique of Macedonia;
- Centres for continuous education;
- Non-Governmental and citizens' organisations.

Institutional framework

Besides of the institutional framework defined in the part relating to sustainability of the National Strategy, an additional institutional support is necessary for the successful realisation of the part from the Strategy in connection with e-education.

- To redefine the status of the existing educational institutions (branches) which profile ICT-staff, as well as to transform those institutions into independent faculties.
- To establish a body for accreditation of centres and institutions for promoting and issuing certificates in the field of ICT-education.
- To establish a centre for e-technologies, which would perform researches regarding the quality and certification of all implemented solutions in the ICT domain in the State.
- Underline the importance of MARNET, and find solutions for institutional and sustainable responsibilities and mechanisms for its proper functioning.

Strategic measures

In order to successfully realise the set objectives, the realisation of the following strategic measures is necessary according to the Programme defined in the Action plan:

Proteus-portal for sublimation of all activities in the e-education domain.

Existence of many donations and numerous projects for increasing the ICT use in all segments of education, which are often uncoordinated and non-standardised, imposes a great need of coordinating and following of these activities from one central point from where you can get all information for different ongoing activities, as well as for those which should be initiated for implementation of the Strategy in place. This situation will be improved by creating the Proteus-portal, which would be the outline of all ICT-activities to be carried out in the education field.

In the field of educational infrastructure:

Better connection among entities from the field of education, science and culture.

The modern and technologically developed states have a developed ICT-infrastructure, especially as regards entities in the filed of education. Having a continuous and fast Internet as communication tool with other educational institutions is one of the issues to which special attention is being paid.

Within the frames of that context, it is necessary to provide continuous development of the academic and university research network - MARNET on a national and international level, as well as providing it with an appropriate compatibility with the Pan-European networks.

This development would be accomplished by improving the organisational structure, further equipping, professionalisation, increasing the transparency and provision of financial stability of MARNET (through providing allocated funds from the Government). MARNET, reorganised in such a manner, should provide a continuous, cost-effective and quality information transfer between the entities in the state, as well as with the other educational entities worldwide.

Increasing and standardisation of the hardware and software equipment within the stated entities and provision of interoperability…

As a qualitative measure for the achieved results, we should strive towards the following:
providing a fast and cost-effective Internet-access for all legal and natural entities participating in the educational process.

Special emphasis is to be made on the need for meeting the standards and the positive practice for Internet-accessibility in the education. To find and propose forms for free Internet access in the education as institutional benefit and as centres for web-culture and literacy dissemination. Special emphasis is on MARNET on the academic and research level.

Improving the operations of the research and innovation centres and the technology transfer centres.

Sublimating the actual situation, expertise and scientific-research and application capacities of the research centres in the ICT domain. Promoting the priorities and coordination of directions for development of research centres and encouraging the development in the priority defined areas. Encouraging the technology transfer centres with specific assistance, through establishment of incubator-enterprises within the high-education institutions.

Implementation of up to date information systems for the educational environment at all levels and providing their interoperability…

Creating and implementing information management systems and defining standards on interoperability and electronic connection of the administration between the institutions of the educational system on the appropriate levels (primary, high school, university). Defining the administrative tasks from and to the local and central Government centres, as well as the specialised institutions (State Statistical Office).

Integrating the existing networks of the local libraries, museums and cultural institutions, as well as the networks of the National Technology Development Centres Associations ("Narodna tehnika") and NGO of Macedonia for ICT-education - free Internet access through public e-points and establishment of clubs for contents development

To encourage establishment of centres with ICT-infrastructure as responsible authorities of the activities for implementation of the Strategy objectives in the part for ICT-literacy and contents development within the existing network of institutions in the following three areas (libraries, cultural museums and institutions and organisational units of the National Technology Development Centres Associations ("Narodna tehnika")).

In the field of ICT in the education system, we should strive towards the following:
Increasing the ICT presence in the primary schools and high schools.

It is necessary to introduce IT at early stages in the primary school and to define the quantitative and qualitative ICT presence in the educational system of the primary and high school education.

Priority revision of the curricula in the field of ICT-education in primary and high school education.

The curricula for the IT in the primary and high school education have to be coordinated with the general objectives of the Strategy, and have to be compatible with the international norms and recommendations.

It is necessary to define new subjects and programmes, as well as to introduce structural and contents' changes in the existing ones.

The organisation of the ICT-areas curricula should enable their easy and dynamical adjustment, by following the dynamics of recent events in the ICT-domain as a whole.

It is necessary to define legal conditions which are to be implemented through engaging ICT-experts in the educational system, as well as to prepare the teaching staff for ICT-education within the system (primary, secondary, obligatory, optional).

The introduction of ICT-education in the primary school and increasing the number of subject courses in all high schools (irrespective of their basic occupation) represent steps to be undertaken within those entities dealing with formal education.

Coordination and development of education in the high-education institutions dealing with ICT-areas.

Profiling the future ICT-experts is of key importance for the overall development of the information society. It is necessary to introduce distinction of applicative and research education for ICT-experts. It is necessary to encourage educational profiles of ICT-experts at more levels (graduate, post-graduate, certified) and to harmonise the expertise by areas.

For the purposes of successful realisation of these measures it is necessary to redefine the status of the existing educational institutions that profile ICT-staff, and to transform them into independent faculties.

The introduction of obligatory ICT-education in all universities in the Republic of Macedonia with adjusted curricula for ICT-literacy is also important.

Integration of flexible forms of learning and forms for lifelong learning by using ICT in the existing system and encouraging their use.

To stimulate the use and development of distance learning systems, lifelong learning and flexible forms of learning by using ICT in all segments of the education process. To adjust or to create a legal framework for their implementation and accreditation.

To provide conditions for encouraging the activities of the centres for flexible forms of learning by using ICT, distance learning and obtaining ICT-domain knowledge.

In the field related to ICT-literacy and contents development, we should strive towards the following:

Enabling the ICT-literacy building as part of the civil education.

One of the supplementary measures regarding the activities for higher citizen participation level in the overall social processes through improved ICT use relates to the increasing of their capacity for simple and efficient use of e-services. To encourage the activities for increasing the ICT-literacy through promoting and support with courses, materials and flexible forms of science, as well as forms of lifelong learning.

Special attention shall be paid to the accessibility of these activities to persons with special needs for their facilitated integration in the society with and through ICT use.

Providing a continuous digital literacy for all professions by making adjustments towards specific professional needs.

The information society development, as well as the knowledge based society development implies educated people. Due to the substantial information technology development within the past couple of years, there is a great part of the population that hardly ever has contacts with that technology. Prejudice and ignorance represent the basic constraints for the creation of the information-communication technology.

A project, such as this one, would be with an objective to increase the information technology use in the daily operations, by educating all population structures. Certified institutions should introduce free of charge courses for those not involved in the formal education, which would provide them with an opportunity of gaining the basic knowledge necessary for the information technology use.

Promoting the ICT-areas certified knowledge concept.

Encouraging the use of European and national certificates through including the commitment for owning certificates for ICT-literacy as an obligatory element in the process of employment in the civil service (such as, through the Civil Servants Agency). Determining the minimum elements to be contained in the certificate and opening the space for competitive presence of national and European certificate-programmes.

Creating the ICT-literature in Macedonian language and in other local languages in areas with the appropriate legal framework.

One of the measures that will have positive impact on increasing the ICT-literacy of the citizens will be the creation of a literature in Macedonian language and in other local languages, which will facilitate the access of the beneficiaries to the information related to methods of ICT use and its advantages.

It is necessary to define measures that will encourage the creation of ICT-literature, such as: tax relieves for its publishing and increasing the motivation for the authors through regulation and appropriate enforcement of the Law on Copyright and Related Rights.

Encouraging the creation and use of digital information - library funds and areas related to education: museums etc.

The existing library and museum collections in Macedonia perform their educational function in a predominantly traditional way. The new standards and trends in these areas impose intensive ICT use in the operations of the institutions themselves, and especially as regards the performing of their educational function; digitalisation and interoperability of the National and of the University library, and the local libraries.

Encouraging the creation and use of digital contents as teaching tools (multimedia and Multilanguage) in the primary and secondary education

ICT use in the educational process is the key factor for fast and efficient transformation towards an education which has the student in its centre, and whose objectives refer to obtaining participatory experience during the learning process. ICT-contents encourage the interactivity, creativity and participation at students, and in many cases represent the only answer to the challenges in order to meet the up to date language and methodological standards.

Macedonian explanatory vocabulary

The lack of standardisation for explaining the different phrases related to the ICT field, which we daily encounter, creates confusion and makes its implementation more difficult. Through the implementation of a project such as this one, a public debate would be opened for defining the standards regarding all phrases that are ICT-related, as well as regarding their explanation in Macedonian language and in other local languages in areas with appropriate legal framework for that purpose.

2.4.4 Defined projects

Project	Priority	Activity	Area	Responsible authorities and stakeholders
PR4.01	1	Proteus-portal sublimating all activities in the field on e-education	e- education (O1)	Information Society Agency
PR4.02	1	Broadband connection between the scientific-research, educational and cultural institutions, and connection of MARNET to the European academic network GEANT and the global Internet	e- education, infrastructure (O1, O3)	MARNET -universities
PR4.03	1	Equipping all educational, scientific and cultural institutions with appropriate ICT and introduction of standards for information exchange	e-education, infrastructure (O2)	Ministry of Education and Science
PR4.04	1	Development of e-contents for the curricula	e- education (O15, O16)	Ministry of Education and Science
PR4.05	1	Transforming the existing ICT high educational institutions into faculties	e- education, legislation (O10)	Ministry of Education and Science
PR4.06	1	e-technologies centre	e- education, all other pillars (O2, O5, O6, O11, O14)	Universities (ICT-faculties)
PR4.07	1	Digitalisation and presentation of the cultural, historical, archaeological and ethnological inheritance (eMuseums)	e- education (O15, O16)	Ministry of Culture
PR4.08	1	Development of systems and tools for distance learning and open forms of education	e- education (O9)	Information Society Agency
PR4.09	2	Macedonian Educational Management Information System and portal design	e- education, infrastructure (O4)	Ministry of Education and Science
PR4.10	2	ICT- education for everyone	e- education (O12, O13)	Ministry of Education and Science
PR4.11	2	Introduction of national, European certificates	e- education (O14)	Information Society Agency
PR4.12	3	Redefining the ICT curricula and contents in the formal education	e- education (O7, O8)	Ministry of Education and Science

Project	Priority	Activity	Area	Responsible authorities and stakeholders
PR4.13	3	Virtual digital libraries	e- education (O15,O16)	Ministry of Culture
PR4.14	3	Encouraging the development of ICT-literature in Macedonian language and the languages used in the education	e- education (O12,O13, O15)	Ministry of Education and Science
PR4.15	1	Electronic registration for admission in primary and secondary schools	e- education (O4)	Ministry of Education and Science
PR4.16	1	Macedonian ICT explanatory vocabulary	e- education (O13, O15)	Metamorphosis Foundation
PR4.17	1	Centres for ICT-technology transfer	e- education (O5, O11)	Universities
PR4.18	1	Electronic registration for admission at Universities or for the purposes of obtaining fellowships, located in student centres	e- education (O4)	Ministry of Education and Science

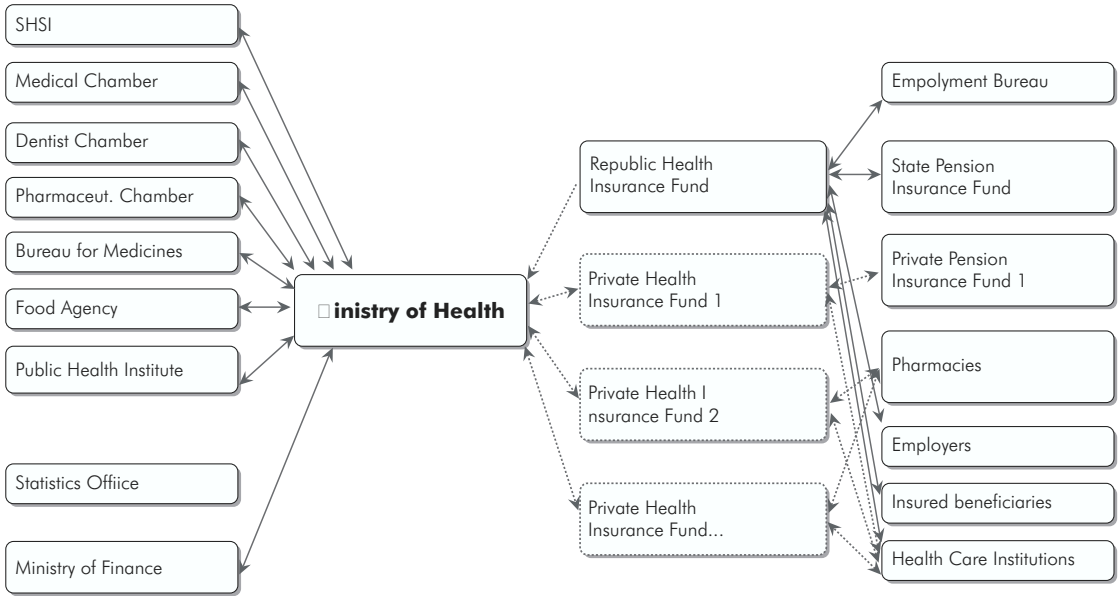
2.5 E-HEALTH

... The world created so far has problems which cannot be solved if one thinks in the way he used to think at a time the world was created...

Albert Einstein

2.5.1 Current situation

Development of the Macedonian Health Information System (MHIS), including the establishing electronic procedures and securing electronic services, shall be accompanied with the institutional organisation and development plans of the Health sector in the Republic of Macedonia, presented on the graph below:



The Ministry of Health (MH) has a central role in the system, which creates and implements the policy in the health sector through respective agencies and institutions. The Republic Health Insurance Fund (HIF) is responsible for:

1. executing the policies in respect to the health insurance established by the MH, and
2. collecting funds and payment of the health care related expenses to the insured beneficiaries.

In future, it is probable that an additional private health insurance shall take place, through setting-up of private health insurance funds.

The MH, with participation of all relevant stakeholders shall manage introduction of electronic services in the health sector.

The Macedonian health care system shall ensure a centralised electronic database of health related data of the population of the Republic of Macedonia, which in compliance with the Data Protection Law, shall be accessible to:

1. HIF for executing of the payments and monitoring over the expenses;
2. Health care institutions for an insight into the history of the patients (anamnesis) and keeping of medical and financial records;
3. Public Health Care Institute (PHCI) for keeping of health care statistics and proposing, i.e. monitoring of health policies;
4. Other participants in the health care system that need and are allowed to have a controlled access to medical and to the health-financial data.

MH shall provide for a centralised database for:
1. Accredited health care institutions and pharmacies;
2. licensed professional medical personnel;
3. nomenclature of diseases, health care services and other;
4. Register of registered medicines.

HIF shall provide for electronic databases for:
1. information on various insurance packages, in compliance with the established policies of the MH;
2. Register of health care institutions with which the HIF has concluded contracts;
3. Register if insured persons;
4. Register of employers and/or other health insurance paying parties.

HIF and PHCI shall continue with their current functions, however, with increased efficacy, as a result to the improved insight into the health care and in the financial records.

2.5.2 Objectives

O5.01 - quick access for the patients to the health care services;
O5.02 - quick access to the medical history (anamnesis) of the patient from any location, i.e. health care institution;
O5.03 - up-dated overview of the health-financial data for the purpose of improvement of the liquidity and the control over the expenses, with ultimate objective - improvement of the financial performances of the HIF;
O5.04 - electronic exercising of rights regarding health insurance;
O5.05 - increasing of the quality of services through electronic following of the medical records and the treatment (evidence based decision-making);
O5.06 - improvement of quality of medical statistics and efficiency in the implementation of health care policies;
O5.07 - securing of high quality information for the needs of education, researches and development of medical professionals;
O5.08 - harmonising of the quality and the standards of the health care system and of the he health care services with those of the European Union.

The information technology that shall be introduced in the health care system, should meet the following standards:
- interoperability of the systems and standard protocols for exchange of data;
- application of the widely adopted and unified nomenclature and encoding systems;

- interoperability with the external users, for instance State Statistics Office, Ministry of Finance;
- application of the international, and especially, EU standards and recommendations;
- application of standard, widely accepted technologies, infrastructure and applied software;

Negative factors

Personnel - the MH does not have the relevant personnel, nonetheless, an IT team must be established which is going to manage the technical aspects of the implementation of the health care information system.

Financial - the health care system is over-indebted, which makes the investment in development projects difficult. It is expected that with the successful continuation of the projects underway, especially with the Project for Health Sector Management, to gradually decrease the indebtedness.

Infrastructure - the existing infrastructure in the MH, HIF and PHCI, the health care institutions and other stakeholders in the health care sector are below the required level, therefore, significant investments are necessary for the purpose of achieving of the set objective.

Positive factors

The Project for Health Sector Management, which is conducted in co-operation with the World Bank and the possibility to secure other donations, including the European integration funds, represents a good starting position for implementation of the needed information technology infrastructure.

The inclusion of the private sector is a possibility for establishing of new qualitative norms for that portion of the health care institutions, and possibly for the health care insurance.

Introduction of Electronic Identity Cards can eventually be used in the improvement of the health care records and identification among the insured parties and the health care institutions, at the same time, securing reduction of the expenses and of the introduction.

The prices of the information technology are going down, which can contribute to introduction of integrated solutions of high quality for the health care information technology system in conditions of limited resources for new projects.

2.5.3 Strategic tasks and Stakeholders

The Republic of Macedonia has an excellent position to capitalise on the experiences of the countries that have introduced health care IT systems and from the eligible funds from the World Bank projects and from other donors.

The project for introduction of new documents for personal identification is also an opportunity to be used for improvement of the records and the identification of the users of the health care services - the citizens.

Through the World Bank Project for the Health Sector Management, the major providers of health care services, HIF and MH, shall be encompassed. With that the quality of the biggest portion of the services as well as the largest part of the expenses in the health care sector, shall be under control.

Introduction of an electronic health care card, on the example of the EU Member States, shall enable a single-sign identification, reduction of the misuses and quick access to the data regarding the health of the patients. With that, a quick and significant progress in the quality of the health care services as well as control and reduction of the expenses in the health care sector shall be achieved.

Health care IT systems shall be introduced in the health care institutions, which shall enable medical and financial following of the patients, as well as electronic charging for the health care services.

The MH shall propose amendments to the existing health related legislation, which shall provide the basis for introduction of:

- electronic exchange of documents among the entities in the health care system;
- protection of the privacy of the personal health care data;
- optimised system of health care insurance through various packages of health care services accessible to various categories of insured beneficiaries;
- keeping and access to the health care data of the patients in electronic form;
- forms of electronic invoicing and payments between the health care institutions and HIF, and later on, the private HIF;
- encoding systems and accessibly to data for services, medicines, medical personnel, health care institutions, insurance companies, insured beneficiaries, and so forth;
- possibility for introduction of an additional health care insurance at a later stage.

2.5.4 Defined projects

From the aspect of the Action Plan, priority shall be given to the projects that bring to a visible progress in cost reduction and service quality improvement in the health care sector.

Project	Priority	Activity	Area(s)	Stakeholders and Participants
PR5.01	1	Creation of a Development Strategy of the IS in the health care sector	O5.01- O5.08	MH
PR5.02	1	Introduction of a unique encoding system;	O5.02, O5.03, O5.06, O5.08	MH, HIF
PR5.03	1	Introduction of an electronic health care card,	O5.01, O5.02, O5.04	MH, HIF
PR5.04	1	Hospital IT systems in the biggest health care institutions	O5.01, O5.03, O5.05 - O5.08	MH
PR5.05	2	Electronic appointment making, electronic informing, and notifying of the patients-citizens	O5.01, O5.08	MH
PR5.06	3	Hospital IT systems in the rest of the health care institutions, including the private ones	O5.01, O5.03, O5.05 - O5.08	MH
PR5.07	3	Information Systems in health care institutions of the primary level of health care, including the private ones	O5.01, O5.03, O5.05 - O5.08	MH, Private health care institutions
PR5.08	3	E-Pharmacies	O5.04	Pharmacies

2.6 E- CITIZENS

. . . One cannot asses the greatness and the power of his mind . . .

Hegel

E-services that shall take into account the needs of the citizens, are one of the fundamental reasons for the overall transformation towards a knowledge-based society. They shall bring a genuine improvement in the quality of the life of the citizens, as well as their increased participation. At the same time, the reforms that shall be indirectly initiated shall have a positive impact on the communication culture of the authorities both at all levels, and among all sectors in the society.

2.6.1 Current Situation

Given the data provided by ITU[7], the level of Internet users in the Republic of Macedonia is 49 on 1000 persons, which just by itself is an unsatisfactory data. Although the new Law on Electronic Communication provides for a favourable environment, it is in the interest of all of us to find out a quick and efficient manner of increasing the number of Internet users. This is also in correlation with the general level of knowledge among the citizens of the Information Communication Technologies (ICT) and as well as in correlation with the political will for securing a favourable environment for this growth. With the increase of the number of citizens who shall seek their services through ICT, the savings shall be increased in the public administration, the unnecessary expenses in the business sector shall be reduced, and the transparency, responsibility and accountability in the process of communication with the citizens and with the non-Governmental organisations shall be increased. At the moment of preparation of this Strategy, the number of e-points[8] is unsatisfactorily small and the entire infrastructure is not functionally developed.

In accordance with the analysis of the Metamorphosis foundation[9], the elementary knowledge of the citizens in respect to computer usage as a precondition for functioning of the e-services is at the level of 50,3%. However, it should be noted that in the group of citizens that do not poses elementary knowledge predominate the citizens with lower level of education, the unemployed, those older than 40 years of age, the inhabitants of rural areas as well as citizens of similar target groups. This fact reveals a realistic hazard for widening of the digital divide for this group of people that amounts to over 1 million inhabitants in a period of transformation towards a knowledge-based society. A positive fact is that over 60% of them have expressed readiness for learning of ICT. The broadband access to Internet (one of the basic preconditions for growth of the number of Internet users), in the regions in which these citizens live, is either technically or financially unfeasible. Bearing that in mind, the e-points seem to be the only realistic solution for this target group at this moment.

Bringing of the Law on Free Access to Public Information represents a sound basis for protection of the rights of the citizens related to the access to information. In the course of 2005, as a legal obligation the institutions shall have to make the public documents and information also

[7] International Telecommunications Union (ITU) - http://www.itu.int, gives the data for December 2002. The Government of the Republic of Macedonia in the responses to the Questionnaire of the EC had provided the following data: "below 5%", which in general sense corresponds with the stated data. The breakdown of internet penetration by states according to ITU is available at: http://www.internetworldstats.com/europa2.htm#mk

[8] Public Internet Access Points

[9] In the course of 2004 Strategic Marketing and Media Research Institute from Skopje had conducted a research ordered by the Metamorphosis foundation, the findings from which are available in the publication "General Data on the ICT Situation in the Republic of Macedonia 2003-2004" http://metamorphosis.org.mk/mak_vesti_detal.asp?id=100.

accessible in an electronic format. Bearing in mind the current situation with the development of the document management systems, and in particular, the use of the non-standard and closed formats of documents and systems for interpersonal communication, it is necessary to stress again the effort made in the interest of the citizens - to have the public data accessible in an open and standardised[10] format in order for the users to have unimpeded communication irrespective of the software platform they have. This imposes the necessary definition of minimum standards (technical, as well as in terms of business policy). This is not just an effort, but also a responsibility of the Republic of Macedonia as a future member of the EU[11].

It is necessary to support the use of the free software and the open code[12] software as a public good accessible to all citizens, especially through the freedom of choice of a platform in the formal and informal ICT education.

ICT- tools enable even greater and more efficient integration of the will of the citizens in the democratic processes of decision-making and law making. At the moment, there is an absence of coherent policy and practice at all levels for inclusion of the citizens in the two-way communication with the institutions of the state and of the local authority via the Internet (consultation and participation in the decision-making).

The current lack of Public Key Infrastructure[13], i.e. security certificates, which is recognised in the Government and judiciary systems, does not enable more advanced level of e-services. There are no clear rules for privacy policy and for storing of personal and classified data in electronic form, especially for the private sector, which opens the possibilities for data misuse.

There is a high level of public awareness of the citizens' associations (NGO) in respect to the social processes and the public interests. With the transition of the Macedonian society towards a knowledge-based society, the civil sector is one of the key agents for increase of the knowledge of the public and running of the public campaigns addressing the citizens. The overcoming of the digital divide and the inclusion of the community in the decision-making process with the help of ICT, is solely possible through a more intensive partnership with the associations.

Currently, in the Republic of Macedonia there is no one-stop-shop system available, however, with the obligations stemming from the integration into the European Union, these reforms shall be conducted in parallel with the implementation of the Strategy for Information Society Development. The current status of the web-sites of the public institutions, with the level of offered information and with the non-unified approach regarding the presentation level of the portals (in general sense, also as it was mentioned, especially in the policy of accessibility, of standardisation of formats and ICT-tools for mutual communication), does not meet the desired standard. There is no publicly stated policy regarding the quality and level of service, there is no publicly accessible Book of Rules on the obligations regarding the deadlines and surveillance of the quality of the responses as well as the level of satisfaction of the users with the responses received from the civil servants on the posed questions and requests. The laws of the Republic of Macedonia are not publicly accessible for the citizens in electronic format, since for the access to these resources a subscription is charged.

[10] The definitions and schemes for open standards of documents and e-services that are recommended by the EU are accessible on the web page of the international body for standardisation OASIS (http://www.oasis-open.org/home/index.php).
[11] The European Commission / IDABC proscribe the standard for the e-services and the types of documents for all members of the Union in the documents that are a part of the Framework for the European Interoperability which and represent a precondition for a successful functioning of the Union at inter-Governmental level, as well as in respect to the inclusion of the citizens. - http://europa.eu.int/idabc/en/document/3473/5585.
[12] By free software is meant "Free and Open Source Software", in accordance with the standards and policies of the European Union (the above stated footnote) (the definition and information could be found on http://www.slobodensoftver.org.mk, http://www.opensource.org, http://www.fsf.org)
[13] PKI - Public Key Infrastructure.

2.6.2 Objectives

In order for the citizens and their associations to be responsible authorities in the information society it is necessary to support the implementation of the following objectives:

O6.01 Support of the local communities in the creation of local sustainable policies for ICT;

O6.02 Building coherent policies in order for all sectors to be able to offer e-services that shall be unified, standardised, accessible, secure, of high quality, user-friendly and aware of the needs of the citizens, irrespective of their location and social status. It is necessary to formalise the obligations, the interoperability, the deadlines, and the quality of the service or any e-service that involves mutual communication at several levels of authority;

O6.03 Enabling accessible e-services irrespective of the software platform, which shall use open standardised formats[14] of documentation and exchange of information;

O6.04 Creation of favourable environment and practice of good governance in order for the citizens to be able to participate in the overall social process, as well as in the process of decision-making at the local and at the national level with the assistance of the ICT tools;

O6.05 Overcoming of the digital divide through solutions, continual training for increasing of public awareness, as well as the knowledge of ICT and e-citizens' education;'

O6.06 Support of the development of the local contents, as one of the agents for increase in the number of Internet users.

2.6.3 Strategic Measures and Responsible Authorities

In order for this Strategy to be translated into reality, apart form the political will and consensus, it is necessary to establish a substantive and more active partnership among the responsible authorities of this Strategy, who shall enable the citizens to be involved not only as beneficiaries of e-services, but also as participants in the decision-making process. The following responsible authorities shall be involved in the realisation of the strategic measures:

- Government of the Republic of Macedonia;
- Public enterprises, agencies and services;
- Parliament of the Republic of Macedonia;
- Local Self-Government Units;
- Information Society Agency;
- Civil Servants Agency;
- The citizens of the Republic of Macedonia
- Civil Society Organisations;
- Education institutions;
- Media;
- Ministry of Environment and Physical Planning
- The business sector;
- Donors and foreign foundations.

[14] In accordance with the present and further recommendations of the European Union. Also, while standardising, it is necessary to take into account the future widening of the fund of e-services towards the citizens initiated with the process of accession of the Republic of Macedonia to the European Union.

The strategic efforts shall be implemented through activities and implementation of the following measures:

1. Sustainable development plans and ICT policies for the local self-Government units (this measure addresses the objective for support of the local communities in the creation of local sustainable ICT policies).

Integration of the local self-Government units in the system of offering of e-services for the citizens shall be possible only of the transfer of knowledge, expertise and creation of respective polices and development programmes at local level is supported, which on one hand, shall reflect the local ambience and the needs, and on the other hand, shall initiate the application of ICT in providing for the economic development of the local community, as well as growth of the number and quality of the e-services accessible to the citizens at the level of access that is most natural - the local community.

2. E-points[15] (this measure addresses the objectives: quality of the e-services, efforts for participation of the citizens, provision of continuous training for the citizens, and support for the local community)

The local self-Government units in partnership with the other sectors shall ensure for the citizens to communicate with the institutions via electronic way, through the publicly accessible e-points. The employees in the e-points shall assist those citizens who are not technically ready, to acquire the essential skills. The local self-Governments shall make sure that it covers the biggest possible percentage of the distant locations with e-points, thus assisting the development of the rural area.

3. Public campaigns and training (this measure addresses the needs of the continuous training of the citizens for overcoming of the digital divide and providing support for the local communities).

It is necessary to train the citizens and to sensitise them to the idea and to the need of creating the demand for e-services from the authorities. This shall be achieved through series of campaigns, training, modification of education curricula, and in partnership with the non-Governmental organisations.

It is in the interest of the public, apart from the reforms in the educational system, to cover also those citizens who have completed their education, and do not posses knowledge of Information and Communication Technologies. It is necessary to acquaint the citizens with the basic knowledge of ICT, as well as with their rights and opportunities offered through the usage of e-services.

In co-operation with the non-Governmental organisations, the public sector shall place a special focus on the target groups that are at great risk to be by-passed by the transformation of the system due to regional, social, educational cultural and other reasons. The NGO sector has a special role in the communication with these citizens.

4. Citizen's portal (this measure addresses the following objectives: quality of e-services, efforts made for participation of the citizens, good governance, continuous campaigns)

The citizens' portal at all levels of Government represents a unified system of offers of e-services to the citizens with a single point of access and standardised layout. The citizens' portal shall respect the standards mentioned in this Strategy.

[15] E-point - public Internet access point.

With the standardisation, unification and public accessibility of the services, the citizens shall be enabled to use these services without the need of repetitive training with each addition of a new module. At the same time, the services shall be accessible to the citizens at one point - the citizens' portal - the beginning and the end of each browsing for information or permits.

5. Standards and favourable environment (this measure addressees the following objectives: the quality of e-services, continuous creation of favourable environment for good governance)

With the establishing of public, open and accessible standards regarding the format of the documents, no service user shall be restricted irrespective of his/her software platform. While defining these standards for access to information, it is necessary to transpose the directives and the decisions of the European Union, which also is our obligation as its future member. The large number of mobile terminals foreseen in the second phase of implementation of the electronic services shall initiate introduction of M-services (mobile phone services).

Introduction of standards on the quality of the services for the citizens (ISO), books of rules on the good practices of communicating with the citizens, as well as efforts made to involve directly the interest groups in the communication with the responsible authorities, shall yield an increased number of satisfied and proactive citizens. The monitoring of the quality of the communication is much more simplified due to the technology that allows an insight into the clear communication paths and into the dynamics of communication, that can be used both for internal, and for external analysis of the percentage of increase in the efficiency of the state and local administration. At the same time, this system shall provide for analysis of bottlenecks and overcoming of the same. With this, the system becomes self-corrective and reduces its own entropy.

It is necessary to define the whole environment and the good practice of respect of privacy of data. At the same time, it is necessary to establish a common system of co-ordination of the efforts for fight against e-crime, which is expected to grow in the coming years - with the arrival of new technologies. It is necessary to define clear standards for security, to educate and employ professionals in the area of security in the public institutions, to secure all networks of the institutions, and to set clear rules for storage of data for the business sector.

The Law on Free Access to Public Information, imposes publishing of all documents of public interest. At the same time, it is necessary to create rules and practice of good governance which will enable the citizens via internet to make proposals and to express their opinions regarding a specific decision, law or other public document or act, and to initiate debates and provide opinions on a specific topic or - proposal of a law by using ICT tools, as well as to propose initiatives by themselves. The two-way communication between the citizens and the authorities shall be the basis for e-democracy.

6. Local contents (measures that address the objective regarding the creation of local contents as one of the forms of increasing of the number of Internet users)

One of the reasons for the citizens to decide to purchase ICT equipment and/or Internet access is also the rich local Internet contents. It is necessary to make efforts to facilitate the increase of the quantity and the quality of information accessible on the local languages placed on the Internet. At the same time, it is necessary for the responsible institutions to publish clear rules for translation of the computer and Internet terminology by publishing an explanatory dictionary (Ref. e-education).

7. Information systems for monitoring of the parameters of the environment (measure that addresses the objective: participation of the citizens)

The need of transparency as well as accessibility to ICT-tools (like the GIS, the spatial information system), the obligations for compliance with international standards for protection of the environment, waste management, participation of the NGO sector in the monitoring of the results, imposes the need of creation of public information system accessible to all interested parties, which is going to monitor the environmental parameters and shall offer resources for future activities.

2.6.4 Defined projects

Project	Priority	Activity	Area	Stakeholders and Participants
PG6.01	1	E-citizens' participation	E-citizens e-Government	MDW/USAID & Metamorphosis Foundation[16]
PR6.01	3	E-citizens' portal	E-citizens e-Government	Government of the Republic of Macedonia / General Secretariat (state level) and the local self-Government (local level)
PR6.02	2	Civil initiatives for information society *(Overcoming digital divide initiative)*	E-citizens	ISA
PR6.03	5	Measures for support of the local contents	E-citizens e-business	ISA
PG6.02	4	E-security	E-citizens e-business e-Government	ISA
PR6.04	5	Environmental Information System	E-citizens e-Government sustainable development	Ministry of Environment and Physical Planning

[16] The project is approved and the responsible authority had secured the initial budget.

2.7 LEGISLATION

. . . It is pointless to tell the river to stop running, it would be better if you learn how to swim . . .

2.7.1 Current Situation

Following the long tradition of the former Yugoslav law, the positive legislation of the Republic of Macedonia is under strong influence of the continental European law. Nonetheless, the Anglo-Saxon law and the legal doctrine are more and more strongly influencing it, and, thus, certain institutes are incorporated into our legal system.

It can be concluded that a portion of the Macedonian legislation still contains specific solutions which were characteristic of the old system of the socio-political order. Although the new legal solutions in essence are in the spirit of the new social relations (market economy, competition, plural political party system, and alike), still it could be noted that the legislation takes a slow course in changing and it looks as if it looses pace with the new social and economic relations. Also, some lack of harmonisation between the laws can be noted.

The Macedonian judiciary system cannot fully respond to the challenges of today. For that reason, it is necessary to introduce an urgent reform of all segments and institutions of the court system (courts, public prosecutor's offices, public attorney, lawyers, notaries, etc.).

From the moment of the making the decisions for accession to the World Trade Organisation and to the European Union, and especially after the signing of the Stabilisation and Association Agreement and entering the World Trade organisation, it is notable that the responsible authorities show a higher level of accountability in the preparation and passing of the laws, and their harmonisation with the international conventions and agreements ratified by our country. This is especially valid for the harmonisation of our legislation with the legislation of the European Union.

Although the Republic of Macedonian had decided to follow the directives of the European Union, meaning that it will strive towards a knowledge based information society and economy, still the creation of adequate and complete legal frameworks is falling behind. Namely, in the Republic of Macedonia there is neither Law on Information Society, nor a Law on Electronic Trading. In the course of 2001 and especially in 2002, the initial steps were made towards regulation of the usage of new technologies (Law on Electronic data and Electronic Signature, Law on Obligations, Criminal Code, Customs Law, Law on Electronic Communications, Law on Protection of Personal Data, Consumer Protection Law, Law on Notaries). However, some of the acts were not sufficiently developed with the passing of the secondary legislation, and in the majority of the cases the introduced changes were insufficient, inadequate and did not yield positive results. This is characteristic for all areas, the infrastructure, the business sector, the state administration (the Government, the stated administrative bodies and the local self-Government bodies), education, health protection, as well as for the services that address the everyday life and the work of the citizens.

In the past several years evident efforts were made regarding specific activities stipulated in the laws, to establish an obligation for the subjects which are deemed to perform those activities, to use information technology, and especially in respect to establishing of specific databases, storing of various records, registers, classified information and their protection, processing and usage of personal data, survey and cadastre data on immovable property, statistics data, performing swift money transfer services, electronic trading, and so forth. (Law on Classification of Information, Decree on Information Security and Classified Information, Law on Protection of Personal Data, Law on Ratification of the Convention for Protection of Persons in Respect to Automatic Processing of Personal Data, Law on Performing of Series of Swift Money Transfer, and the Book of Rules for keeping of the register of service providers for swift money transfers, Law on Trade, Consumer Protection Law, Law on Identification and Registration of Live-Stock, Company Law, Book of Rules on keeping of the Trade Register and of entering data into the Trade Register, and so forth).

2.7.2 Objectives

The legislation, de lege ferenda, should create a legal framework that shall provide impetus for development and application of new technologies and services stemming from them. The legislation that regulates the information society is a very wide concept and addresses and influences all spheres of the society and of the legal system.

The contents of the legislation depends on the objectives, the measures and the project activities defined in the projects on infrastructure, e-business, e-Government, e-education, e-health and e-citizens. It shall represent a legal framework for development of the information society.

E-legislation shall be in compliance with, however it should also follow the trends of the UNICITRAL rules, WTO-TRIPS Agreement, the agreements and conventions administered by the World Intellectual Property Organisation, and the EU directives on ICT, e-business and intellectual property.

E-legislation, de lege ferenda, can be grouped as: (1) legislation that should provide for institutional framework; (2) legislation that addresses the substantive law in specific areas; and (3) legislation that refers to the proceedings. It should provide for:

- liberalisation of the market of electronic communication services;
- prevention of the misuse of the monopoly position and limitation of competition;
- establishing and implementation of standards and systems for digital records, for their management and storing;
- establishing, development and usage of state and local databases (registers), mutual interconnection and exchange of information from the databases by the interested persons, the Government, the administrative bodies and the local self-Government;
- forming of a Certification Agency, as the basis for usage of PKI;
- employment of competent human resources, especially in the Government, in the administrative bodies, and in the local self-Government, providing their continuous education;
- better and more efficient solutions for the administrative and court proceedings, simplification of the processes and cost reduction;
- forming of research centres and technology transfer centres and their co-operation with renowned international centres;
- changes in the education system;
- development of the systems for distance learning, lifelong learning and flexible forms of learning for and of usage of ICT;
- establishing and development of digital libraries in the education, science and culture;

- development of unique encoding system;
- computerisation of the primary health care, special hospitals;
- establishing of electronic health card and web services for making appointments for physical exams;
- establishing a system of electronic ID card with an electronic certificate for the citizens;
- standardisation of the services for exchange of information and documents with the European systems;
- observe the principles of accessibility, multi-language, security, privacy, and subsidiary of the e-services in all sectors of the society;
- protection of the intellectual property rights, databases, security of information and privacy of the data;
- protection against computer crime;
- establishing of electronic business operation.

2.7.3 Strategic Measures and Responsible Authorities

Since legislation, the task of which is to establish and to develop the knowledge based information society and economy, refers to all areas of the social, political and economic system, it can be said that there is no subject - individual, group, party, organisation, municipality and so forth - which is going to be left outside the process of developing and passing of the e-legislation.

Moreover, the responsible authorities of these activities shall be:

- Parliament of the Republic of Macedonia,
- Government;
- CIT;
- Ministry of Justice;
- Ministry of Economy;
- Ministry of Transport and Communications;
- Ministry of Finance;
- Ministry of Education and Science;
- Ministry of Culture;
- Chamber of Commerce of Macedonia;
- other chambers;
- MASIT;
- Civil Servants Agency;
- Industrial Property Institute;
- Bar Association;
- Notary Association;
- Universities;
- MARNET;
- Consumers' Organisation of the Republic of Macedonia;
- Citizens' associations, and other;

The above stated objectives shall be ensured through (1) passing of new laws, and (2) harmonisation of the existing and other legislation.

The primary goal of the e-legislation shall be to bring the Law on Information Society and the Law on Electronic Trading, as well as to form a Certification Agency, and to bring the secondary legislation, in accordance with the Law on Electronic Data and Electronic Signature.

The Law on Information Society in a unique systemic fashion should regulate the basic principles for development of information society and technology, financing, institutional framework for development of the information society, measures for monitoring and implementation of the Law. In that way, adequate harmonisation of the various laws and other acts that regulate this substance shall be ensured in accordance with the legal system of the Republic of Macedonia as well as with the European Union acquis.

The Law on Electronic Trading should regulate the conditions for performing wholesale and retail through communication means. This Law should be based on the UNICITRAL's Model-Law on Electronic Trading.

The passing of the above stated laws shall result in the need to propose adequate amendments and additions to the existing laws and other regulations that regulate specific aspects of the information society in the areas covered in this Strategy.

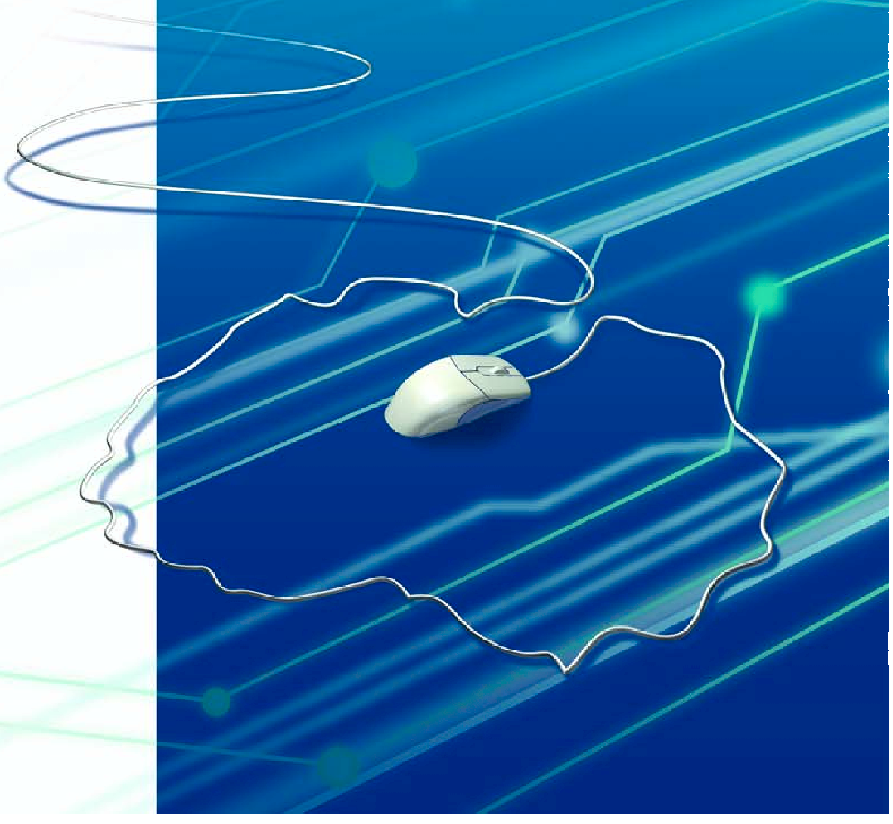
The short-term goal shall be the implementation of the Law on Electronic Communication and passing of the secondary legislation foreseen in this law.

The mid-term goal shall be reforming of the judiciary, for the purpose of an efficient and effective protection against misuse, especially of the privacy and of the security of data. At the same time, amendments to the laws should be made in the field of: health, education, trade, economy, finances, banking, taxes, customs, court proceedings, intellectual property, databases, privacy, safety of data, and alike.

The above state objectives shall be accomplished through public campaigns, massive training of all entities, and especially of the civil servants, the judges, the prosecutors, the public attorneys, the lawyers, and the employees in the institutions in the field of health, education, culture, science, and other public services. At the same time, the utilisation of the new technology and services should be stimulated by offering a lower customs rate, tax, priority resolving of the cases submitted electronically, etc.

2.7.4 Defined projects

Project	Priority	Activity	Area	Responsible authorities and stakeholders
PG7.01	1	Brining of the Law on Information Society	Legislation, O7.01	Ministry of Transport and Communications
PG7.02	1	Bringing of Law on Electronic Trading	Legislation, O7.02	Ministry of Finance
PG7.03	2	Harmonisation of the laws and of other regulations in respect to and have influence on the information society	Legislation O7.01 and O7.02	Ministry of Justice
PG7.04	5	Training of civil servants, judges, prosecutors, public attorneys, lawyers and the employees in the institutions in the field of health care, education, culture, science and other public services	Legislation, O7.01, O7.02 and O7.03	Ministry of Justice



3 PRIORITY AREAS ENABLING STRATEGY SUSTAINABILITY

Starting from the need the development of the information society in the Republic of Macedonia to have along-term sustainability, this part of the Strategy has as its aim to define and to explain the priority areas in which it is necessary to undertake activities in order to achieve that objective.

3.1.1 Current Situation

In the Republic of Macedonia there is no precisely defined framework for development of the information society, nor are the sources of financial means defined, as well as the funds aimed at financing and building of the infrastructure, nor other projects aimed at development of the information society, there is low level of awareness of the need and of the importance of the information society, and finally, there is almost no monitoring and/or evaluation of the achievements so far. Hence, one meaningful conclusion comes to the fore: the creation of the foundations that should lead towards a sustainability of the development of the information society in the Republic of Macedonia, is something that should be made from the very beginning

3.1.2 Objectives

The basic objectives of the strategy are defining also the objectives of the laying down the foundations and the priority areas that should enable sustainability of the building and further development of the information society in the Republic of Macedonia:

- on short-term - *establishing the basic assumptions and preconditions* necessary for the onset of the development of the information society;

- on long-term - *creation of entire environment* which shall enable and shall stimulate the development of the economy of the Republic of Macedonia as a knowledge based economy, i.e. as an economy whose competitive capacity and dynamics shall be based on creativity, inventions and innovations.

Segmenting of the objectives on short-term and long-term ones is done with the purpose to refer to specific measures and tasks necessary for their accomplishment. At the same time, the short - term refers to the period until 2007, i.e. until that point of time all basic assumptions, which shall enable the impetus for development of the information society in the Republic of Macedonia should be completely formed and already articulated in the practice. On the other hand, for the long-term, there are no concrete time limits, given that this is a relatively permanent development process, which shall have its own sub-phases that are going to be achieved in the course of time. In 2007 it is planned to revise the Strategy, in order to harmonise it with the objectives of the Draft-Action Plan of the European Commission "i-2010". This Chapter of the Strategy covers primarily the changes and the elements that are achievable in short-term.

3.1.3 Strategic Measures

Starting form the theoretical knowledge of the basic assumptions for the sustainability of the implementation of the reforms and change management, as well as the experiences in the development of the information society in other countries ("the best practices"), five specific areas of measures and programmes are determined which are necessary to be addressed for the purpose of establishing the basis for sustainability of the information society. Those measures are:

- Creation of the legal framework for development of the information society;
- Creation of complete institutional framework, responsible for the development of the information society;
- Public awareness raising regarding the need and the importance of the information society;
- Creation of possibilities for a wide (for all citizens) accessibility to internet;
- Defining of mechanisms for securing funds for financing of the development of the information society; and
- Establishing of continuous monitoring and evaluation of the development process of the information society.

1. Legal framework, as a rule, represents a very important part that enables sustainability of the development processes. Hence, the creation and bringing of a separate *Law on Information Society* in the Republic of Macedonia is an imperative for the sustainability of this process in the future. This Law, apart form other elements, has to separately regulate the following issues:

- Constituting an institution (Agency) which is going to conduct the activities for development of the information society in the Republic of Macedonia;
- Constituting of other parts of the institutional infrastructure needed for the development of the information society in the Republic of Macedonia;
- The basic principles and obligations of all public institutions in the development of the information society;
- Bringing of secondary legislation defining technical and other standards on which the development of the information society in the Republic of Macedonia shall be based;
- the manners (mechanisms) of financing of the development of the information society in the Republic of Macedonia

The improvement of the legal framework for development of information society, apart from bringing of the Law on Information Society, also entails other (already existing) laws that contain provisions in this area. They should be brought in complete mutual compliance, which should be done in the shortest possible period (by the end of 2005). The deadline for preparation and bringing of the Law on Information Society is latest by October 2005.

2. The institutional framework that stimulates and co-ordinates the development process of the information society also represents a very important part for achieving sustainability. The institutional framework should contain: clear definition and clear delineation of the competences of all existing and future institutions that shall be part and parcel of it. The delineation of the competences between the institutions within the institutional framework, through which the process of development of the information society in the Republic of Macedonia shall be stimulated and co-ordinated, is represented in the scheme below, and in respect to the definition of their competences, it is necessary to differ among institutions that would:

- define the policy and its priorities;
- perform the advisory function;
- implement policies and activities; and
- perform the function of a regulator of the market and of the work.

In that sense, the institutional framework for development of the information society in the Republic of Macedonia shall be composed of the following institutions:

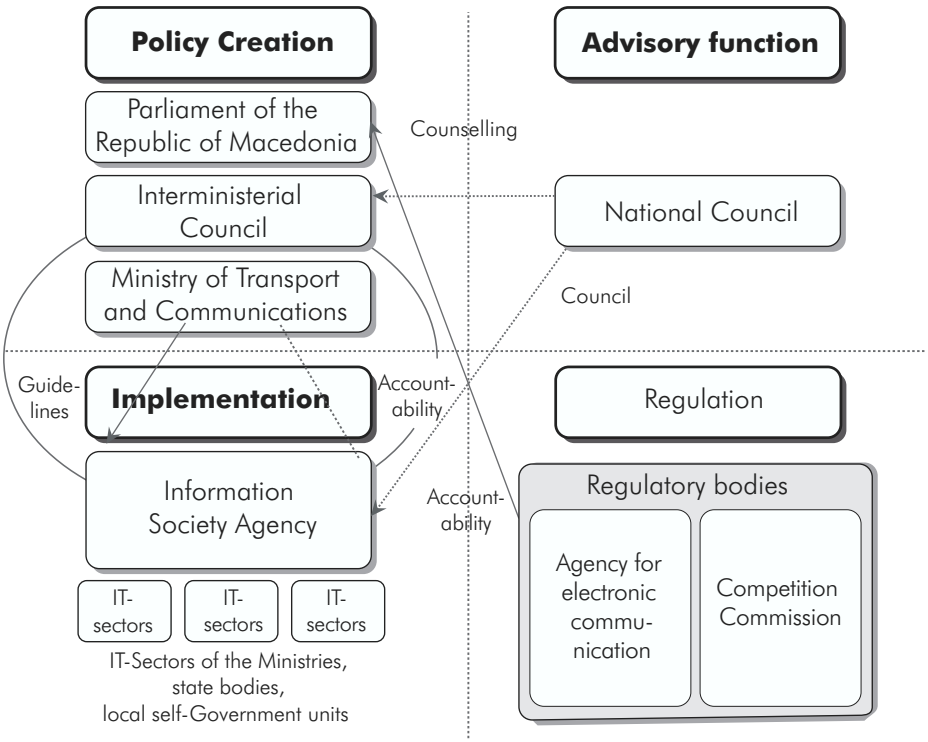
a) *for defining of the policy and its priorities, as well as for co-ordination of the implementation of this Strategy and its individual projects,* shall be formed:

Interministerial Council

It shall be chaired by the President of the Government of the Republic of Macedonia, and the members shall be the Deputy of the President of the Government responsible of the European Integration and the Minister of Transport and Communications, the Minister for Education and Science, the Minister of Interior, Minister of Justice, Minister of Economy, Minister of Finance, Minister of Labour and Social Policy, and Minister of Local Self-Government.

The competences of the Interministerial Council are as follows:

- Defining of the basic guidelines and priorities of the policy;
- Linking of the policies for development of the information society with the other development policies in the Republic of Macedonia;
- Co-ordination of the activities of various parties - participants in the process;
- Adopting of the evaluation reports on the development of the information society in the Republic of Macedonia and on the implementation of the Strategy and of the Action Plan.



b) *For the purpose of performing the advisory function*, shall be formed:

National Council for Information Society of the Republic of Macedonia

It shall consist of 25 members selected by the Parliament, as well as representatives from the private and from the public sector, from the Universities and the non-Governmental organisations. The members of this Council should be re-known experts from various areas, as experts in the working group responsible for the preparation of the Strategy.

The competences of the National Council for Information Society of the Republic of Mcedonia are:

- Providing guidelines and recommendations regarding the basic trends and priorities of the policy;
- Preparation of opinions regarding the manners of linking of the policies for development of the information society with the other development policies in the Republic of Macedonia;
- Co-ordination of the activities of various parties - participants in the process;
- Performing the monitoring of the development of the information society in the Republic of

Macedonia and of the implementation of the Strategy and of the Action Plan.

The Interministerial and the National Council shall also work together as a partnership between the public, private and the civil sector.

c) *for conducting of the policies and activities* for development of the information society in the Republic of Macedonia, a central implementation institution shall be established:

Information Society Agency for of the Republic of Macedonia

This Agency shall be a legal entity established with the Law on Information Society. The management of the Agency shall be under the competency of the Managing Board, and the operation shall be under the competence of a Director. The Parliament shall appoint the members of the Managing Board, and it will be composed with a dominant participation of the representatives from the private and the non-Governmental sector. The Agency should operate in accordance with an annual programme, for which the National Council for Information Society shall provide the recommendation, and the Government shall provide approval. The basic competences and the activities of the Agency shall be:

- Operational processing and archiving of data and information as a public good;
- Implementation of the adopted projects for development of the information society in the Republic of Macedonia;
- Co-ordination of the activities that shall be implemented by the IT sectors in the Ministries and in the other state agencies, organisations and bodies;
- Co-ordinated management and development of integrated backbone network for the needs of the Governmental institutions and the public administration;
- Certification of the usage of the PKI;
- Creation and management of the funds of the Information Society Development Fund of the Republic of Macedonia;
- Making endeavours for public awareness raising and education in respect to the importance of the development of the information society.

The Law on Information Society shall define concretely all of the competences of the Agency. The financing of the functioning of this Agency shall be done with the funds from the Budget of the Republic of Macedonia as well as from own incomes of the Agency, coming from various services that it would provide. The creation and the issuing of the "smart cards" (electronic personal documents) is an example of a service that should be provided by this Agency. The control over the spending of the funds shall be secured through planning of the expenses ahead of each year, and by accounting (reports) to the Parliament of the Republic of Macedonia, at least once a year. The deadline for creation of this institution is the end of 2007.

Implementation of portion of activities for development of the information society in concrete domains shall be also in the competence of:

IT-sector of the General Secretariat of the Government and of the IT-sectors in the ministries, state bodies and other state and public institutions.

In that sense, the General Secretariat of the Government, each ministry and state institution should have an IT-sector[17], by bearing in mind of the advantages and disadvantages of engaging a greater number of external employees in respect to performing of the tasks on contractual basis. The concrete competencies of each IT-sector should be specified with the documents that define the functions of each individual institution, in accordance with the Law on Information Society.

At local level, each municipality in the Republic of Macedonia should create a Programme for information society development at the level of the municipality, as well as to create an IT-sector, the management of which shall be under the competencies of the Council of the local self-Government unit and/or the Mayor. In essence, the competencies of those IT-sectors shall address the implementation of various activities and projects for development of the information society at the level of the municipality. At the same time, those sectors should cooperate among themselves and with the Information Society Agency of the Republic of Macedonia.

d) *for performing of the regulatory function* already specific institutions exist, and also others shall be formed, in accordance with the needs in specific areas.

3. The building (i.e. the raising) of the public awareness regarding the need and the importance of the information society in the Republic of Macedonia is also necessary in the context of the establishing of foundations for a long-term sustainability and development of the process. On the other hand, the building of the public awareness has a component of self-sustainability, which means that the most important issue is to commence with that process, and further on the progress shall by itself contribute to further building of the public awareness. In that sense, two issues are of importance:

- creation and definition of a project composed of set of campaigns, the aim of which is raising the level of public awareness - in fact, this is a process of creating a "public passion" for inclusion of the citizens in the building of the information society in the Republic of Macedonia, and especially in respect to the usage of the Internet network. The campaigns shall be adequately adjusted to the objectives. The implementation shall commence in the first half of 2005;

- defining and undertaking other activities aimed at raising of the level of the public awareness in respect to benefit of building of an information society in the Republic of Macedonia - as examples the following can be mentioned: organisation of various events related to the promotion of the development of the information society, awarding rewards for best solutions in this field, organising series of speeches and articles, through which the importance of the development of the information society for solving of the problems of the citizens shall be promoted, and especially, pointing out good and successful examples that exist and are going to be developed in the course of time in the Republic of Macedonia. This is especially important in the context of the sustainability. This activity shall commence in the course of 2005, however it has a more lasting character than the campaign itself.

[17] An obligation undertaken with the signing of the Stabilisation and Association Agreement.

4. Creation of the possibility for a wider (for all citizens) accessibility to the Internet also means setting of the basic assumptions and preconditions that are necessary for the outset of the development of the information society. At the same time, without neglecting the economic (i.e. the financial) side of this activity, the starting ground in this sense is the realisation of the idea that the access to the Internet today is a part of the set of human rights, which in essence means that the access to the Internet has a characteristics of a public good. An effort should be made that this service is accessible to all under equal, low-priced, yet economically sustainable parameters. This measure shall lead towards narrowing of the current gap (digital divide) among the population of the Republic of Macedonia, in respect to the usage of information technology products. Several options exist in this respect:

- usage of public centres for access to internet ('e-points') in the local self-Government units;
- undertaking legal (regulatory) and other measures of the policy that shall create competition on the market, which shall result in decrease in the prices of use of Internet.

These activities shall commence at the beginning of 2006.

5. Defining of the mechanisms for securing funds for financing of the development of the information society in the Republic of Macedonia also represents a crucial factor for the sustainability of the process. In that sense, in essence, there are several options that could be used:

- including of the expenses for purchasing of the information technology (as a legal obligation) in the regular planning of the central budget and in the budgets of the local self-Government units. In this respect, it is necessary, in legal sense (with the Law on Information Society), to define also a specific threshold, i.e. a criterion - from 0,5 up to 1% of the total budget expenses in the course of the next five years;

- directing part (percentage) of the income from the sale of the public enterprises (or their funds) in covering of the expenses for development of the information society in the Republic of Macedonia. This obligation should be legally defined with the Law on Information Society. The economic justification of this measure, again is the fact that the funds from the sale of public capital subjects should be spent on creation of the foundations of the future economic development, and this is the development of the information society. The deadline for commencing with the implementation of this measure is immediately after passing of the new law;

- Forming of an Information Society Development Fund in the Republic of Macedonia. With the money from this Fund primarily shall be financed development of the public centres for training on information technology usage, or for public centres for access to Internet. Apart from the Government, the private sector should participate in the Fund, meaning that also the possibility should be considered for specific fiscal alleviation for the enterprises which invest (i.e. donate) in this Fund. The deadline for commencing with the implementation of this measure is the end of 2005;

- Defining of a set of separate measures that are going to influence the attraction of foreign direct investments in the information society development in the Republic of Macedonia. The possibilities for provision of specific alleviation to foreign investors should be considered, although this should not be the only measure. The implementation of this measure should commence immediately after the adoption of the Strategy.

Spending of the funds for information society development in the Republic of Macedonia shall be conducted in accordance with the guidelines and priorities defined by the Interministerial Council, upon recommendations and opinions provided by the National Council on Information Society. Their realisation, in accordance with the legally entrusted competences, in part, shall be performed through the Information Society Agency, and in the other part, through the ministries and other state institutions and agencies.

6. Continuous monitoring an evaluation of the information society development also represents an important part of the sustainability. Two different types of monitoring and evaluation are in question: 1) of the process of implementation of the Strategy and of the Action Plan, and 2) of the information society development in the Republic of Macedonia on the whole. For conducting both types of monitoring and evaluation it is necessary to establish and to define the following:

- indicators (benchmarking) of the evaluation;
- methodology for evaluation (to use the methodologies that are applied in other countries);
- periods of evaluation (annually);
- to authorise an institution which is going to be responsible to consider and to adopt the evaluations and the reports.

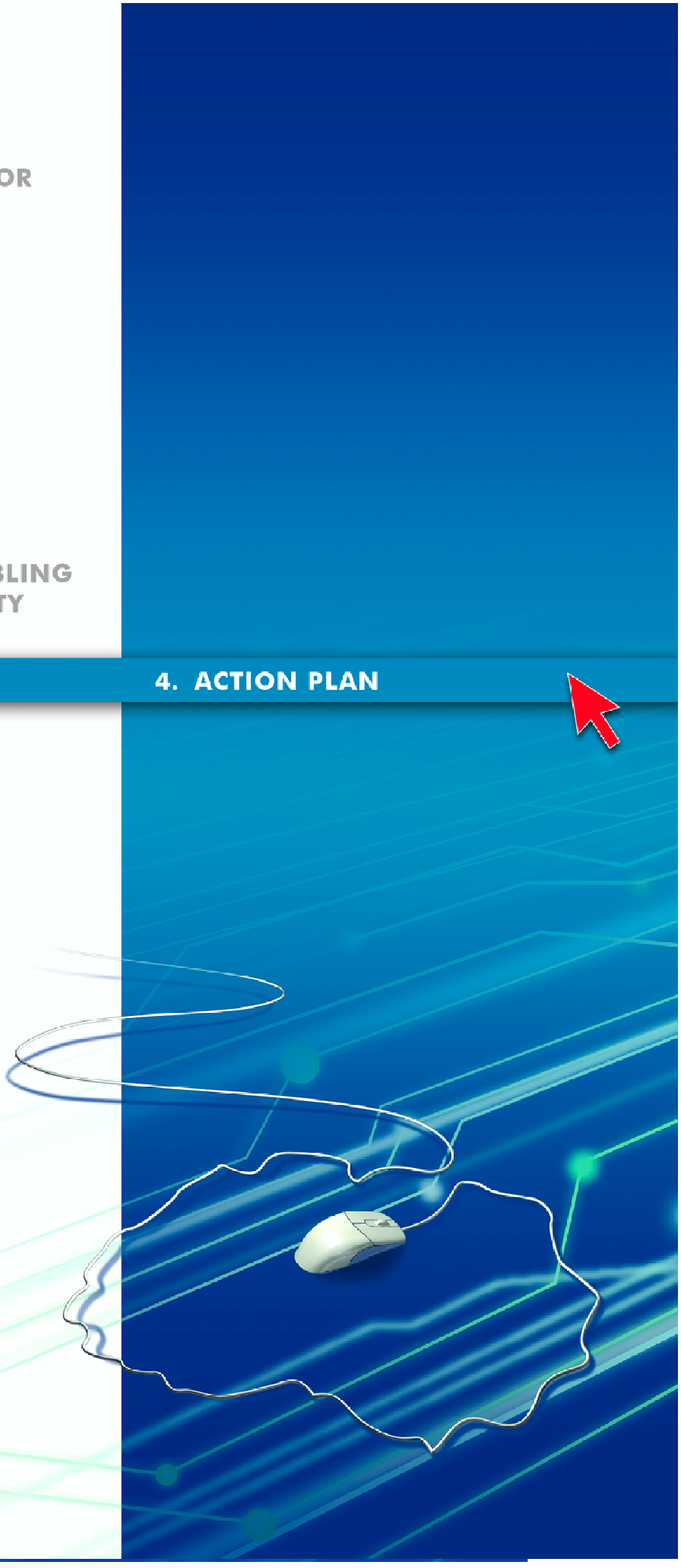
In respect to the defining of the indicators, the methodology for evaluation and the periods of assessment, one short-term project is defined (to be completed before the end of 2005), with which they shall be created and subsequently shall be adopted by Interministerial Council and by the National Council.

The responsibilities for adoption of the evaluation and monitoring reports lays with the Interministerial Council, as well as the responsibility for providing guidelines for future development, while the National Council for Information Society should provide its own opinion and recommendations based on those reports. The Councils also have the responsibility to propose amendments in the domains where weaknesses in the information society development in the Republic of Macedonia occur.

The implementation of this measure commences immediately after the adoption of the Strategy.

3.1.4 Priority Projects

Project	Priority	Activity	Area	Responsible authorities and stakeholders
PR8.01	1	Defining of the organisational structure and the necessary capacities of the Agency for civil society	Sustainability	CIT
PR8.02	3	Campaigns for raising of the public awareness for information society	Sustainability	CIT
PR8.03	2	Forming of a fund for information society development based on the principles of partnership between the public and the private sector	Sustainability	Government of the Republic of Macedonia
PR8.04	5	Defining of the indicators and methodology for evaluation of the information society development in the Republic of Macedonia	Sustainability	CIT, Government of the Republic of Macedonia



4 ACTION PLAN

This Action Plan entails all projects, pilot projects, initiatives or programmes, divided by the previously stated pillars, where in an identical manner they are represented, linked to the realisation of a specific objective from the Strategy, responsible authority of the activity, other participants in the realisation, the time of implementation, financial projection, as well as critical factors for the implementation, the sources of financing and potential risks in respect to the Expected Outcomes. For a portion of these projects that are already in a preparatory phase the following is listed: defined responsible authority for the activity and secured financial means, the actual responsible authority of the project and the specific approved financial means. The listed priorities for realisation of some of the projects are not binding priorities, but reflect a proposal for grouping of the projects.

4.1 INFRASTRUCTURE

Type of activity:	**Project - PR1.01**	
Title of the Activity	Activities for ensuring wide presence and spreading the idea of massive usage of fast and cost-effective internet	
Area	Infrastructure O1.01	
Reference	E-Government, e-citizens, e-education	
Responsible Authority	Government of the Republic of Macedonia, Information Society Agency	
Participants:	• AD "Makedonski telekomunikacii"; • Universities; • Private sector; • Non-Governmental organisations; • Education.	
Activity Description	Measures of the Government of the Republic of Macedonia for: Providing internet access to public locations (university campuses, transport centres, libraries and cultural centres) with application of modern networking technologies (WI-Max, of the PMP type) Providing quick internet at reduced prices; Providing free-of-charge access of the citizens to internet by dialling a specific number.	
Expected Outcomes	Increase in the number of Internet users and promotion of the Internet services	
Components:	1. Component 1	Linking of Governmental institutions
	2. Component 2	Linking of educational, cultural and other centres
	3. Component 3	Linking with the local administration
Preconditions	Practical usage of the ID cards, a decision taken at Government level, for a rational building of communication infrastructure at the level of the Republic of Macedonia	
Period of Implementation	The end of 2006	
Financial Projection	A study on the financial projection 100.000 EUROs Realisation - about 5 million EUROs	

Critical factors for implementation	
Financial sources	Budget, donor institutions, local self-Government, private sector
Expert staff, human resources, necessary knowledge and expertise	National human resources potentials for the development of the project are available.
Development Environment	Promotion, Agency for Electronic Communications, Information Society Agency
Technologies	Following the trends in the technology, i.e. wide-band services (digital subscriber line), WDM optical technologies, digital subscribers lines - DSL lines, using of Wi-Fi, Wi-Max, transfer of data through existing protocols, FR, IP, ATM, WLAN grid - infrastructure and other advanced technologies that provide quality services.
Deadlines	2007 implementation of the project
Monitoring of the Realisation	Published material, research on the acceptance and usage of the services, conducting an opinion poll of the citizens through scheduled plans in a project-management, number of electronic services and internet users.
Risks	Lack of financial means and lack of quality project management co-ordinating all activities given the complexity of the project, it is necessary to split the project in phases and areas.

Type of activity:	**Project - PR1.02**	
Title of the activity	Defining of the existing capacities and the planned activities on the part of the infrastructure of the civil service and in the public enterprises/institutions and the telecommunication services operators	
Area	Infrastructure O1.02	
Reference	E-Government, e-education	
Responsible Authority	Information Society Agency	
Participants:	• Governmental institutions; • Agency for Electronic Communications; • mobile and fixed network operators; • telecommunication services operators; • State Statistical Office.	
Activity Description	Screening of the condition with the existing capacities in the area of infrastructure, which can serve as basis for future projects	
Expected Outcomes	Precise and relevant data for the existing capacities and the possibilities to link and use those capacities to other users - projects	
Components	1. Component 1	Defining the existing capacities in the part of the infrastructure in the civil service
	2. Component 2	Defining the existing capacities in the part of the infrastructure in the public enterprises
	3. Component 3	Defining the existing capacities in the part of the infrastructure in the companies (economic operators)

Preconditions	Financial means, consent from all responsible authorities, co-operation with the State Statistical Office
Period of Implementation	By the end of September 2005
Financial projection	50.000 EUROs
	Critical factors for implementation
Financial sources	Budget, donors and private sector
Expert staff, human resources, necessary knowledge and expertise	- MARNET; - universities, IT faculties, national experts and consultants; - MASIT; - State Statistical Office
Development environment	Information Society Agency
Technologies	In order to complete the analysis of the capacities, hardware and software support is needed
Deadlines	It is necessary to finish the analysis in due time, for the purposes of undertaking further activities in respect to the infrastructure, as well as for equipping and staffing of the institutions.
Monitoring of the Realisation	Through reports and implementation schedules within the project
Risks	Lack of consent, financial means, inappropriate project management

Type of activity:	**Project - PR1.03**	
Title of the activity	Design and implementation of the backbone network for the need of the Governmental institutions; - civil service; - private sector;	
Area	Infrastructure O1.02	
Reference	E-Government, e-citizens, e-education	
Responsible Authority	Information Society Agency	
Participants:	• MARNET; • MASIT; • Institutes, universities; • Private sector; • Agency for Electronic Communications.	
Activity Description	Design and construction of the backbone network at the level of the Republic of Macedonia, whereas all subjects will find interest in its respective implementation, usage and maintenance.	
Expected Outcomes	Plan for development and implementation of a quality infrastructure which in a longer period of time shall meet the needs of the beneficiaries and building of partnership relations between the subjects, possibilities for a regional networking	
Components	1. Component 1	Analysis of the existing resources
	2. Component 2	Design of the network with a rational usage of the existing capacities
	3. Component 3	Implementation and monitoring
Preconditions	Political will, financial means, synergetic acting of all responsible authorities, knowledge of the existing infrastructure and its integration	

Period of Implementation	By the end of 2007
Financial projection	Subject of a study (an assessment for the preparation of the study - 100.000 EUROs) Project realization 3-4 million Euro
	Critical factors for implementation, financial means, control and monitoring system
Financial sources	Government and donor organisations
Expert staff, human resources, necessary knowledge and expertise	MARNET, IT faculties, national experts and consultants, with the possibility to include foreign experts for the purpose of a regional networking
Development environment	Legislation
Technologies	Optics, security technologies, VPN
Deadlines	By the end of 2006
Monitoring of the Realisation	Through project management, pursuing of the implementation of the plans and through the planned periodical reports
Risks	Financial means, inefficient project management, lack of political will, inactive participation of all responsible authorities

Type of activity:	**Project - PR1.04**	
Title of the activity	Assessment of the necessary legal framework for development of the ICT infrastructure	
Area	Infrastructure, legislation, related to C1.02	
Reference	Regulations, e-business	
Responsible Authority	Ministry of Transport and Communications	
Participants	• MASIT; • Information Society Agency; • Agency for Electronic Communications; • Ministry of Transport and Communications; • Donor institutions.	
Activity Description	Team of national experts shall make an overview and analysis of the international organisations' legislation and analysis of the legislation in the Republic of Macedonia	
Expected Outcomes	Overview of the needed legislation that needs to be harmonised or to be adopted	
Components	1. Component 1	Analysis of the national legislation
	2. Component 2	Analysis of the EU legislation
	3. Component 3	Guidelines and proposals for amendment and changes of the existing laws; Passing of new laws (Law on Information Society).
Preconditions	Political will, active involvement of all interested parties, financial means.	
Period of Implementation	6 months	
Financial projection	60.000 EUROs	
	Critical factors for implementation	
Financial sources	Donor institutions, Government of the Republic of Macedonia (budget)	
Expert staff, human resources, necessary knowledge and expertise	Using of foreign experts for those parts of the legislation which need to be harmonised in compliance with the EU law	

Development environment	Experiences of the EU experts in respect to the legislation
Technologies	n/a
Deadlines	End of 2006
Monitoring of the Realisation	Through regular reports
Risks	Absence of political will, inertia of the public institutions

Type of activity:	**Project - PR1.05**	
Title of the activity	Structural change of the Telecommunications Directorate and its transformation into Agency, with monitoring over its operation	
Area	Infrastructure objective O1.01, O1.02, O1.03	
Reference	E-Government, e-citizens, legislation, e-business	
Responsible Authority	Agency for Electronic Communication	
Participants:	• Agency for Electronic Communications; • Donor institutions; • Experts in the field.	
Activity Description	Organisational architecture and staffing of the Agency for Electronic Communications, which will have the role of a regulatory body in the area of telecommunications, bringing of all necessary and needed secondary legislation	
Expected Outcomes	An efficient Agency that will meet the European standards of work	
Components	1. Component 1	Establishing of an Agency for Electronic Communications
	2. Component 2	Passing of the required secondary legislation
	3. Component 3	Structuring, staffing and training
Period of Implementation	12 months	
Financial projection	Subject of a study (an assessment for the production of the study - 100.000 EUROs)	
	Critical factors for implementation	
Financial sources	Donors	
Expert staff, human resources, necessary knowledge and expertise	Foreign experts in the field of electronic communications legislation	
Development environment	Desired experiences and practices are those coming from the EU members of the Member States of the EU	
Technologies	n/a	
Deadlines	The implementation of the project affects the efficiency of monitoring and regulation of the market of electronic communications, establishing and constituting of the Agency is needed as soon as possible	
Monitoring of the Realisation	Through report for adopted acts, project management, pursuing of the implementation of the plans and through the planned periodical reports and bulletins	
Risks	Long period for adoption of the acts	

Type of activity:	**Project - PR1.06**
Title of the activity	Analysis on the introduction of all corresponding standards regarding the usage of ICT (data, services, infrastructure, management, security, documentation...)

Area	Infrastructure O1.02, O1.03	
Reference	With all pillars	
Responsible Authority	Information Society Agency	
Participants:	• Government institutions; • private sector; • donor organisations.	
Activity Description	Analysis of the priority standards which should be introduced in the state and in the public institutions	
Expected Outcomes	Introduction of IT standards and narrowing of the gap with the EU legislation and overall improvement in the part of the ICT	
Components	1. Component 1	Analysis of the priority standards
	2. Component 2	Determining the level of introduction of standards
	3. Component 3	System of monitoring and evaluation of the results
Preconditions	Consent from all responsible authorities and dedication to the introduction of the standards, each institution shall need to produce an internal analysis of the level of introduction of the standards.	
Period of Implementation	4-6 months	
Financial projection	100.000 EUROs	
	Critical factors for implementation	
Financial sources	The Government of the Republic of Macedonia and donor organisations	
Expert staff, human resources, necessary knowledge and expertise	National experts and if necessary, engagement of foreign experts	
Development environment	It is desired to use the experiences from the countries that have introduced the standards, in the sense of using best practices and avoiding mistakes	
Technologies	Specific technology is not required	
Deadlines	The introduction of standards is a long process that requires a lot of financial means and energy, nevertheless, it is necessary to introduce the standards determined as the priority ones as soon as possible	
Monitoring of the Realisation	Through a developed system for introduction of the standards and control over the conducting of the changes	
Risks	Lack of financial means, insufficient commitment and perseverance in respect to the introduction of the standards, insufficient involvement of the employees in the institutions	

Type of activity:	**Project - PR1.07**
Title of the activity	Production of educational CD material on the use of e-services
Area	Infrastructure O1.01, O1.03
Reference	With all pillars
Responsible Authority	Private sector
Participants:	• Government institutions; • private sector; • donor organisations; • non-Governmental sector;
Activity Description	Production of an interactive CD that shall also contain an Internet-service in respect to that how the citizens should use the e-services of the institutions

Expected Outcomes	Greater number of Internet-users and greater knowledge among the citizens of the possibilities of the Internet services and the benefits of the Information Society	
Components:	1. Component 1	A methodological preparation of the material to be understandable and acceptable for the citizens that do not posses sufficient knowledge of the IT technology and using of computers
	2. Component 2	Defining of the contents
	3. Component 3	Production and distribution
Preconditions	The Governmental and the public institutions should provide a minimum package of e-services that can be offered to the citizens and usage of the ID cards.	
Period of Implementation	4-6 months	
Financial projection	Donor institutions in co-operation with the IT sector, public and Governmental institutions, the banks 200.000 Euro	
	Critical factors for implementation	
Financial sources	private sector, Government and Governmental institutions, donors organizations	
Expert staff, human resources, necessary knowledge and expertise	There is national potential available for the implementation of this project	
Development environment	Promotion of the benefits from the e-service and the development of the information society	
Technologies	IP technologies	
Deadlines	Existence of content for e-services	
Monitoring of the Realisation	Through implementation schedules in the project management	
Risks	None	

Type of activity:	**Project - PR1.08**	
Title of the activity	Defining of the demands for ICT resources and human resources in the respective institutions	
Area	Infrastructure O1.02, O1.03	
Reference	E-Government, e-citizens	
Responsible Authority	Information Society Agency	
Participants:	• Agency for Electronic Communications; • Civil Servants Agency; • Government and the Governmental institutions; • State Statistics Office.	
Activity Description	Defining of the needs of the institutions on the part infrastructure (hardware, software, human resources).	
Expected Outcomes	Overview of the needs which shall represent the basis for further staffing and further equipping of the institutions, but also considering of the possibility for using common resources.	
Components:	1. Component 1	Analysis of the existing capacities
	2. Component 2	Possibilities for using external capacities
	3. Component 3	Staffing and further equipping
Preconditions	Political will, financial means, co-operation with the State Statistics Office	

Period of Implementation	4-6 months
Financial projection	100.000 Euro The implementation of the first component shall establish the needs as well as the necessary financial means for implementation of the project
Critical factors for implementation	Lack of IT staff in the institutions who should determine the need and the existing resources, financial means
Financial sources	The Government of the Republic of Macedonia, donor institutions
Expert staff, human resources, necessary knowledge and expertise	National capacities and human resources
Development environment	Promotion of need for educated staff
Technologies	Required technology will be determinate, based on the training
Deadlines	4-6 months
Monitoring of the Realisation	Through reports
Risks	Lack of sufficient funding for completion of the project, i.e. staffing and equipping in accordance with the defined needs in the component 1.

Type of activity:	**Initiative - IN1.01**
Title of the activity	Analysis of the concessions obligations with the AD "Makedonski telekomunikacii" and the possibility for readjustment of the obligations in other projects
Area	Infrastructure O1.01, O1.02
Reference	E-Government, e-citizens
Responsible Authority	Ministry of Transport and Communications
Participants:	• AD "Makedonski telekomunikacii"; • Ministry of Transport and Communications; • Electronic Communications Agency.
Activity Description	To establish the options in order to be able to more efficiently and more effectively utilise the means (services) evolving from the obligations of AD "Makedonski telekomunikacii" towards the state.
Expected Outcomes	Allocating resources for implementation of projects
Preconditions	Consent from both parties and readiness for co-operation
Period of Implementation	3-4 months
Financial projection	n/a
Critical factors for implementation:	Absence of political will and lack of desire for co-operation
Financial sources	n/a
Expert staff, human resources, necessary knowledge and expertise	National capacities and human resources
Development environment	Political will for collaboration from all interested parts
Technologies	n/a
Deadlines	Does not affect other activities, however it can contribute to the projects related to building of the physical infrastructure
Monitoring of the Realisation	Through a report and suggested possible solutions acceptable for all parties
Risks	Lack of interest for co-operation and flexibility

Type of activity:	**Initiative - IN1.02**	
Title of the activity	To produce an overview of all on-going projects and activities in the area of IT at the level of the Republic of Macedonia	
Area	Infrastructure O1.02, O1.03	
Reference	Connected with all pillars	
Responsible Authority	Information Society Agency	
Participants:	• nformation Society Agency; • Donor organisations; • Local Self-Government; • Governmental institutions; • Private sector.	
Activity Description	Insight into the on-going project in place in the Republic of Macedonia	
Expected Outcomes	Efficient utilisation of the donor funds, avoiding of overlapping and duplication of the activities, possibility for linking of projects and mutual usage of the infrastructure and the resources, the received results shall serve as basis for creation of a portal, which is a subject of another project;	
Components:	1. Component 1	Forming of donor council in which all donor organisations and institutions shall be members
	2. Component 2	Creation of an overview of the existing projects, analysis of the development programmes of the donor institutions
	3. Component 3	Forming of a concept for co-ordination of the projects, of the participants in the projects and of the donors
Preconditions	Consent of all parties, by the Government and by the donors, legislation	
Period of Implementation	A process that should be developed on continuous basis	
Financial projection	Subject of a study (an assessment for the production of the study - 100.000 EUROs)	
	Critical factors for implementation	
Financial sources	The Government and the donor institutions	
Expert staff, human resources, necessary knowledge and expertise	The existing human resources in the country including the foreign representatives of the donor organisations working in the Republic of Macedonia	
Technologies	Hardware and software for completion of the project	
Deadlines	End of 2005	
Monitoring of the Realisation	Bulletins, reports, presentations of successful projects	
Risks	Absence of political will, unwillingness for co-operation and co-ordination of the activities among the donors, inefficient system of monitoring and control.	

Type of activity:	**Initiative - IN1.03**
Title of the activity	Reduction of administrative procedures for receiving licences necessary for construction of the infrastructure in the interest of the state (high priority projects)
Area	Infrastructure C1.02
Reference	Infrastructure and legislation
Responsible Authority	Information Society Agency in co-operation with the responsible ministries which issue licences in respect to construction of infrastructure.

Participants:	• Operators providers of electronic communications; • Institutions that plan to construct infrastructure (highways, gas-pipelines and alike); • Ministry of Transport and Communications; • Ministry of Environment and Physical Planning; • Agency for Electronic Communications;
Activity Description	Establishing of the bottlenecks in the process of obtaining necessary documentation; Analysis of the possibility to reduce the procedure and defining a criterion for determining of the priorities of the projects
Expected Outcomes	Reduction of the time needed to obtain the necessary licences from the responsible ministries.
Preconditions	Legislation, re-design of the working process, back-office reorganisation
Period of Implementation	3-6 months
Financial projection	Subject of a study (an assessment for the production of the study - 100.000 EUROs)
	Critical factors for implementation
Financial sources	Government, donors organizations, private sector
Expert staff, human resources, necessary knowledge and expertise	National experts
Development environment	Introduction of system of quality
Technologies	Required technology will be result of the study
Deadlines	End of 2005
Monitoring of the Realisation	Established procedures
Risks	Inefficient organisation of the working processes, lack of trained staff, inertia of the human factor

4.2 E-BUSINESS

Type of activity:	**Project - PR2.01**
Title of the activity	Defining of standards for a digital invoice and digital order
Responsible Authority	Chamber of Commerce of Macedonia
Area	E-business - C2.01
Participants:	• All interested business operators (the major ones); • Ministry of Economy, Ministry of Finance; • Public Revenues Office; • State Statistical Office; • National Bank of Macedonia • Banks; • Chamber of Commerce of Macedonia; • MASIT; • Universities.
Activity Description	In essence, the project entails preparation of standards, definition of XML-schemes for digital order and digital invoice for the interest companies and institutions for electronic commerce.
Expected Outcomes	A more simplified inclusion of more small and medium-sized companies into the e-business, given that one part of the preconditions for this inclusion would have been solved in advance. Simplification of the electronic business through adoption of standards in the documentation.
Preconditions	Completion of the regulation on electronic signature.
Period of Implementation	12 months
Financial projection	0 - the major companies would finance the project through participation of experts and resources form the companies and from the institutions
	Critical factors for implementation
Financial sources	Participation with resources by all involved parties in the project.
Expert staff, human resources, necessary knowledge and expertise	The needed human resources would come from the major companies interested in introduction of the project and from the interested members of the MASIT, creation of the XML-schemes and low-cost simple software in order to be used also by the small companies that participate in the chain of suppliers to the major companies.
Technologies	The standard to be developed on a technology which all interested parties can use it and the technology it self to not be a precondition to use the standard
Deadlines	24 months
Monitoring of the Realisation	Through quarter reports and meetings of interested companies representatives. Check did after 24 months the standards for digital invoice and digital order are developed and implemented by the companies
Risks	Lack of interest among the companies Conflict of interests among major companies

Type of activity:	**Project - PR2.02**	
Title of the activity	Analysis of the e-readiness of the Republic of Macedonia for e-business	
Area	E-business - O2.02 and O2.03	
Responsible Authority	The National Council for Entrepreneurship and Competitiveness	
Participants:	• MASIT; • Information Society Agency; • National Council for Entrepreneurship and Competitiveness; • Universities.	
Activity Description	Gathering of data for WEF and publishing of the same in order to have a view of the e-readiness in the Republic of Macedonia.	
Expected Outcomes	Clear overview of the e-readiness of the Republic of Macedonia. Macedonia in the Network Readiness Index of the WEF.	
Components:	1. Component 1	Parallel research and training
	2. Component 2	Universities undertake the research
Preconditions	Certain methodologies according which the data will be collected and analyzed	
Period of Implementation	Once a year in duration of three months.	
Financial projection	15.000 EUROs per research.	
	Critical factors for implementation	
Financial sources	Initially: donors. Latter: fees from the reports	
Expert staff, human resources, necessary knowledge and expertise	Human resources: the students from the universities. Experts: at the moment the National Councils for Entrepreneurship and Competitiveness (NCEC) is responsible for conducting of this research. They, in co-operation with the consulting company and the WEF, shall train professors and assistant professors at the Universities that would plan, organise and would conduct this research each year. The first time, the universities would participate as partners to a specific consulting company in the conducting of the research in order to gain experience. Later on, the universities would be the responsible party for the research.	
Technologies	The methodologies and standards of the World Economic Forum should be applied	
Deadlines	The first analysis to be performed between February -June 2006	
Monitoring of the Realisation	Annual publishing of the data in the Network Readiness Index of the World Economic Forum	
Risks	Lower level of the research The data to not be accepted by the World Economic Forum and Macedonian companies	

Type of activity:	**Project - PR2.03**
Title of the activity	Development of a business model for reorganisation and digitising of the business processes and implementation of the e-business.
Responsible Authority	A body composed of Macedonian experts, supported by a consulting company and three selected Macedonian enterprises.
Area	E-business - O2.04 and O2.01
Participants:	• Information Society Agency; • MASIT.

Activity Description	Creation of a detailed business model and development of a detailed business plan for three enterprises for reorganisation and digitalisation of the processes
Expected Outcomes	Detailed business models for three companies in Macedonia developed
Preconditions	The companies should be at the beginning level of e-business
Period of Implementation	6-9 months
Financial projection	50.000 EUROs
	Critical factors for implementation
Financial sources	Combined financing: Donors through voucher system and financing by the respective company
Expert staff, human resources, necessary knowledge and expertise	There are available experts in the private sector and at the universities who would implement this activity. For a detailed analysis of the process, the members of the expert group shall acquire additional knowledge trough the training organised for them.
Development environment	This activity should be promoted, the companies should be selected through a tender and a body that would conduct the process should be constituted.
Technologies	Enterprise Resource Planning. Custom Relationship Management Software, and Supply Chain Management Software. Process Mapping and Methodologies for Process reorganisation.
Deadlines	Commencement: at the end of 2005.
Monitoring of the Realisation	Defining of key points and monitoring of the implementation and the achievement
Risks	Inability to find adequate companies. Differently presented condition in respect to the e-business in the company selected through tender.

Type of activity:	**Project - PR2.04**	
Title of the activity	Training for introduction of the ICT and e-business in the companies	
Responsible Authority	Agency for Entrepreneurship / Association of IT-centres	
Area	E-business - O2.02, O2.03 and O2.01	
Participants:	• Incubators; • Trained trainers.	
Activity Description	Conducting training for the employees in the incubators on how to help the companies in their region regarding the introduction of the ICT and the e-business in their own business.	
Expected Outcomes	- spreading of the e-business initiatives; - continuous training provided by the incubators to the enterprises;	
Components:	1. Training of trainers	Training of a national group, which would be trained by international experts for introduction of e-business (IT and organisational aspects) in small and medium-sized enterprises.
	2. Training provided by the trainers to the employees in the pillars	Training of the employees in the incubators / IT - centres throughout the Republic of Macedonia by the trained group on introduction of e-business (IT and organisational aspects) in the small and medium-sized enterprises in their regions.

Period of Implementation	- 1 week each six months for the national group; - 4 weekends per year for the employees in the incubators.
Financial projection	Up to 50.000 EUROs
	Critical factors for implementation
Financial sources	- 1st phase: donors; - 2nd phase: incubators should cover for their own expenses for these training.
Expert staff, human resources, necessary knowledge and expertise	International experts for introduction of ICT and e-business in the companies Macedonian experts in the area of ICT and e-business Employees in the Macedonian incubators
Development environment	A classroom facility equipped with computers.
Technologies	Simulation software
Deadlines	Commencement: September 2005
Monitoring of the Realisation	The number of presentations and of the training that the employees in the incubators have held for the enterprises in their regions. The number of businesses that have created an e-business model.
Risks	- insufficient staffing of the incubators; - lack of training for the expert body

Type of activity:	**Project - PR2.05**
Title of the activity	Promotion of e-business
Responsible Authority	MASIT and the Information Society Agency
Area	E-business - O2.03
Participants:	• Donors; • Enterprises.
Activity Description	Direct promotion oriented towards enterprises in the Republic of Macedonia for the possibilities offered through e-business. The promotion shall be organised through sending of brief case studies and examples in which is explained how a specific enterprise, with similar features to those of the Macedonian enterprises, had implemented the e-business, as well as the benefits and the problems it had encountered.
Expected Outcomes	- increased information of the enterprises of e-business; - increased contact of the enterprises with the local incubators.
Period of Implementation	1 bulletin once per months. In total, 24 months.
Financial projection	20.000 EUROs
	Critical factors for implementation
Financial sources	Donors
Expert staff, human resources, necessary knowledge and expertise	- an expert body shall provide the case studies; - MASIT shall provide the logistical support.
Deadlines	January 2006 - December 2007
Monitoring of the Realisation	The number of enterprises that receive the bulletin. Number of follow up requests from the companies
Risks	Inappropriate analysis and articles in the bulletin. Low interest from the companies

Type of activity:	**Project - PR2.06**
Title of the activity	Analysis of the need for development of a Research Centre for E-business
Responsible Authority	Universities
Area	E-business - O2.02 and O2.03
Participants:	• Information Society Agency; • MASIT; • MCA; • Electronic Communications Agency; • State Statistics Office.
Activity Description	Analysis of the need for establishing a Research Centre that would perform researches in the area of e-business and would prepare reports, guidelines and directions for e-business for the Republic of Macedonia.
Expected Outcomes	Feasibility study
Preconditions	A consent from all the parties regarding the objectives and the manner of operation of the centre.
Period of Implementation	12 months
Financial projection	15.000 Euro
	Critical factors for implementation
Financial sources	Initially, from donors, MASIT and from the universities
Expert staff, human resources, necessary knowledge and expertise	Consultants company that will provide objective analysis of the need for research center
Deadlines	the analysis to be done till June 2006
Monitoring of the Realisation	Periodical reports for the dynamics of the research
Risks	Uncompleted analysis and not taking in account all the aspects needed to make quality decision

Type of activity:	**Project - PR2.07**	
Title of the activity	Guide for the implementation of e-business in small and medium-sized enterprises (SME)	
Responsible Authority	Universities	
Area	E-business - O2.01 and O2.02	
Participants:	• MASIT; • Information Society Agency; • Agency for Entrepreneurship.	
Activity Description	To create a Guide which shall take into consideration the conditions in the Republic of Macedonia and shall be used by the Macedonian SMEs in conducting e-business	
Expected Outcomes	Guide for Conducting e-business in the Republic of Macedonia - published and disseminated	
Components:	1. Component 1	Creation of the Guide
	2. Component 2	Dissemination of the Guide
Preconditions	- to receive the data on the e-preparedness of the Republic of Macedonia for e-business; - created business plans for the selected companies.	

Period of Implementation	3-6 months
Financial projection	Up to 10.000 EUROs
	Critical factors for implementation
Financial sources	Donors
Expert staff, human resources, necessary knowledge and expertise	- expert body formed for the creation of the plan of the three major enterprises in the Republic of Macedonia; - incubators.
Technologies	Simulation software regarding the impact of the e-business on the operation of the company
Deadlines	to be completed June 2006
Monitoring of the Realisation	Number of requested guides. Requested assistance from the incubators by the small and medium-sized enterprises
Risks	The guide to not reflect the real needs of the Macedonian companies

Type of activity:	**Initiative - IN2.01**
Title of the activity	Organisation and participation in fora for making contacts and exchange of information at national and at international level.
Responsible Authority	Information Society Agency
Area	E-business - O2.03
Participants:	• MASIT - participants; • Companies - participants; • Electronic Communications Agency - participants; • Banks - participants; • Universities.
Activity Description	Forums on which the participants in the process, which can be mutually connect in the e-business - chain of values would discuss the current development and the possibilities of mutual connecting in an e-business
Expected Outcomes	Established contacts and exchanged information of the plausible co-operation between the various business subjects.
Period of Implementation	Each 6 months
Financial projection	5.000 EUROs
	Critical factors for implementation
Financial sources	1st phase: the Government and donors; 2nd phase: MASIT and the Government.
Deadlines	Before launching a tender for selection of enterprises for creation of a project for them
Monitoring of the Realisation	The number of present participants on the conference
Risks	The Forums not to offer quality information for the companies. As a result of this the bumber of participants on the following forum to be reduced

Type of activity:	**Initiative - IN2.02**
Title of the activity	Forming of an Association/Foundation of subjects interested in implementation of specific projects (for instance: electronic signature).

Responsible Authority	A kind an association/foundation that needs to be defined additionally.
Area	E-business - O2.01 and O2.03
Participants:	• Private enterprises (in case of a digital signature); • Macedonian Telecommunications; • KIBS; • Business banks.
Activity Description	The basic activity of the association would be the division of the roles of each of the members for the purpose of implementation of the foreseen project. This in practical terms would mean, to produce an analysis of the situation in which is currently this project, the necessary steps for its implementation and undertaking of activities by each of the subjects for the purpose of implementation of those steps.
Expected Outcomes	Sooner implementation of a project that is already started, as a result of an active and organised work of the responsible authorities
Preconditions	To inspire the participants to find their own interest in a form of an association.
Period of Implementation	3-6 months
Financial projection	0 - the association would be finances by the deposits of the founders.
	Critical factors for implementation
Financial sources	Starting: invested by the founders and the interested parties
Expert staff, human resources, necessary knowledge and expertise	The responsible entities would be the key persons from the interested institutions, and if needed, external persons or institutions would be engaged who would be deployed for resolving of specific problems.
Development environment	This activity would be promoted upon an initiation meeting of the responsible authorities.
Deadlines	Commencement: immediately.
Monitoring of the Realisation	Number of projects on which the association is working Number of successfully realized projects
Risks	A resistance by the subjects, lack of initiative to start energetically and in an organised manner with the implementation of the project.

Type of activity:	**Initiative - IN2.03**
Title of the activity	Placing information about the business operators in the Republic of Macedonia on a web portal
Responsible Authority	The Central Registry of the Republic of Macedonia
Area	E-business - O2.03
Activity Description	- Creation of a web-portal where information of the business subjects, which are not a business secret, would be presented (precise title, ownership, seat, balance sheets, deponents in which banks). - placing a link to the web portal to those companies which have a web portal and a link to the e-market-centre, for those who do not have one, as well as an e-address for contact.
Expected Outcomes	- opening of business subjects towards the internet; - simple access to basic information of the business operators;
Preconditions	Decree with which the institution shall be bound to make electronically accessible all information that is not a business secret.

Period of Implementation	2 months, including the time needed to organise the work. The time of implementation is also in direct correlation with the ending of the project for e-market-centre.
Financial projection	100.000 EURO's
	Critical factors for implementation
Financial sources	Donors
Expert staff, human resources, necessary knowledge and expertise	The Central Registry should conduct the activity, provided it creates its own web portal or a company that is specialised in that.
Development environment	This activity should be promoted, the companies should be selected on a tender, and a body that is going to conduct the process should be formed.
Deadlines	Commencement: May 2005
Monitoring of the Realisation	Number of companies presented on the portal. The quality and updating the data. Portal traffic.
Risks	No decree. Privately owned portals to offer better data.

4.3 E-GOVERNMENT

Type of activity:	**Project - PR3.01**
Title of the activity	Creation of a web portal for participation of the citizens in the building of the society (e-democracy)
Area	E-Government
Reference	Objective 1 - participation of the citizens in the building of the information society
Responsible Authority	The Government, the General secretariat, the ministries
Participants:	Representatives from all bodies of the civil service and the bodies of the local self-Government units
Activity Description	The web-portal should enable through several forms active participation of the citizens in the building of the society, with the possibility for a debate, asking questions and initiating new ideas within the local and the central authorities.
Expected Outcomes	Greater transparency in the operation of the Government
Preconditions	Political will and active involvement of all subjects
Period of Implementation	Up to one year
Financial projection	3.000 Euro
	Critical factors for implementation
Financial sources	Budget of the Republic of Macedonia
Expert staff, human resources, necessary knowledge and expertise	There are available experts and human resources
Development environment	Infrastructure and technical equipping
Technologies	Web-technology, XML
Deadlines	One year
Monitoring of the Realisation	Through regular reports
Risks	Absence of will and inertia of the public institutions

Type of activity:	**Initiative - IN3.01**
Title of the activity	Government measures - initiatives for reduction of the tax for (software) services from IT technology
Area	E-Government
Reference	Objective 3 - legal and institutional framework for development of the information society
Responsible Authority	Government of the Republic of Macedonia
Participants	Government of the Republic of Macedonia
Activity Description	The Government should launch initiatives for reduction of the tax of this kind
Expected Outcomes	Achieving a reduction tax for software services form the IT technology
Preconditions	Political will at the level of the Government
Period of Implementation	Up to one year
Financial projection	200.000 Euro

	Critical factors for implementation
Expert staff, human resources, necessary knowledge and expertise	There are available experts and human resources for realization of this initiative
Deadlines	Up to one year
Monitoring of the Realisation	Through appropriate Government institutions
Risks	Absence of political will and inertia on the part of the Government

Type of activity:	**Project - PR3.02**	
Title of the activity	Defining of standards and architecture for e-Government applications and pilot projects	
Area	E-Government, infrastructure	
Reference	Objective 5 - electronic and on-line transactions for e- Government services which stimulate economic and social prosperity.	
Responsible Authority	The Government of the Republic of Macedonia, CIT	
Participants:	Representatives from all bodies of the civil service, the Information Technology Sector at the General Secretariat of the Government, CIT and representatives from the University	
Activity Description	Defining of standards, processes, methods and products for e-Government applications	
Expected Outcomes	Greater efficiency and efficacy of the Government	
Components:	1. Component 1	Defining of infrastructure
	2. Component 2	Defining of standards
Preconditions	Political will and active involvement of all subjects	
Period of Implementation	Up to one year	
Financial projection	Up to 15.000 Euro	
	Critical factors for implementation	
Financial sources	The Budget of the Republic of Macedonia	
Expert staff, human resources, necessary knowledge and expertise	There are available experts and human resources	
Development environment	Infrastructure and technical equipping	
Technologies	Web-technology, XML	
Deadlines	Up to two years	
Monitoring of the Realisation	Through regular reports	
Risks	Absence of will and of necessary financial means	

Type of activity:	**Project - PR3.03**
Title of the activity	Providing a unique programme for electronic document management (document & and workflow management)
Area	E-Government
Reference	Objective 2 - infrastructure at satisfactory level
Responsible Authority	Government of the Republic of Macedonia, CIT
Participants:	Representatives form all bodies of the civil service and the bodies of the local self-Government

Activity Description	Implementation of the document management and workflow system primarily in each body of the civil service, and later on, implementation of the electronic document management programme with the local authorities.	
Expected Outcomes	Greater efficiency and efficacy of all involved institutions in the project	
Components:	1. Component 1	Implementation of the system internally in each body of the civil service administration
	2. Component 2	Implementation of the system internally in each body of the local self-Government unit
	3. Component 3	Providing a unique programme
Preconditions	Political will and active involvement of all subjects	
Period of Implementation	Up to one year	
Financial projection	Up to 100.000 Euro	
	Critical factors for implementation	
Financial sources	The Budget of the Republic of Macedonia and other external sources	
Expert staff, human resources, necessary knowledge and expertise	There are available experts and human resources	
Development environment	Infrastructure and technical equipping	
Technologies	Web-technology, XML	
Deadlines	Up to two years	
Monitoring of the Realisation	Through regular reports	
Risks	Absence of will and necessary financial means	

Type of activity:	**Project - PR3.04**
Title of the activity	Enabling access to free of charge information to all laws and legal documents
Area	E-Government
Reference	Objective 3 - legal and institutional framework for development of the information society
Responsible Authority	The Government of the Republic of Macedonia
Participants:	The bodies of the state authority, the Parliament of the Republic of Macedonia
Activity Description	Public announcement and free of charge access to all information related to the laws and legal acts.
Expected Outcomes	Greater awareness of the citizens regarding all legal projects passed by the Government
Preconditions	Political will and active involvement of all subjects
Period of Implementation	6 months
Financial projection	Up to 3.000 Euro
	Critical factors for implementation
Financial sources	Budget of the Republic of Macedonia
Expert staff, human resources, necessary knowledge and expertise	There are available experts and human resources
Development environment	Infrastructure and technical equipping

Technologies	Web-technology and XML
Deadlines	Up to one year
Monitoring of the Realisation	Through regular reports
Risks	Absence of will of all involved subjects

Type of activity:	**Project - PR3.05**
Title of the activity	Introduction of the ID card
Area	E-Government
Reference	Objective 6 - increased number of ICT experts and increased level of ICT literacy in the civil service
Responsible Authority	Ministry of Interior
Participants	The private sector with active participation of the bodies of the state authority
Activity Description	Implementation of the identification personal card of the citizens with all necessary personal details.
Expected Outcomes	Efficiency, efficacy in the operation and personal data security
Preconditions	Existing of political will and active involvement of all subjects
Period of Implementation	Up to 24 months
Financial projection	2.000.000 euro
	Critical factors for implementation
Financial sources	Budget of the Republic of Macedonia, donations and other external sources
Expert staff, human resources, necessary knowledge and expertise	There are available experts and human resources
Development environment	Infrastructure and technical equipping
Technologies	Web-technology, XML
Deadlines	Up to 24 months
Monitoring of the Realisation	Through regular reports
Risks	Absence of will among all involved subjects and of the needed financial means

Type of activity:	**Project - PR3.06**
Title of the activity	Creation of a web-portal for all existing services for the citizens and the business community
Area	E-Government
Reference	Objective 6 - increased number of ICT experts and increased level of ICT literacy in the civil service
Responsible Authority	Government, General Secretariat, Ministries and local self-Government bodies
Participants:	The private sector through a public tender
Activity Description	Electronic accessibility and offering of all services by the Government to all subjects, the civil service bodies and the bodies of the local self-Government units
Expected Outcomes	More efficient and more transparent work of the Government viewed from the aspect of the external subjects
Preconditions	Political will and active involvement of all subjects

Period of Implementation	From 6 up to 12 months
Financial projection	Up to 3.000 Euro
	Critical factors for implementation
Financial sources	The Budget of the Republic of Macedonia, donors
Expert staff, human resources, necessary knowledge and expertise	Experts and human resources are available
Development environment	Infrastructure and technical equipping
Technologies	Web-technology, XML
Deadlines	One year
Monitoring of the Realisation	Through regular reports
Risks	Absence of will of all involved subjects

Type of activity:	**Project - PR3.07**
Title of the activity	Employment and training of ICT personnel in the civil service
Area	E-Government, e-education,
Reference	Objective 6 - increased number of ICT experts and increased level of
	ICT literacy in the civil service
Responsible Authority	Government, Ministries
Participants:	All bodies of the state authorities and the bodies of the local self-Government units, the Civil Service Agency
Activity Description	Employment and training of needed ICT personnel in the civil service for the purpose of implementation of the current and the strategic tasks and objectives
Expected Outcomes Preconditions	Successful realization of all of the set activities and tasks in the field of ICT Creation of all necessary preconditions and possibilities by the Government for employment, training and keeping of the ICTpersonnel
Period of Implementation	Up to 24 months
Financial projection	500.000 euro
	Critical factors for implementation
Financial sources	The Budget of the Republic of Macedonia
Expert staff, human resources, necessary knowledge and expertise	Expert personnel in the field of ICT is insufficient
Deadlines	Up to 24 months
Monitoring of the Realisation	Through regular reports
Risks	Absence of sufficient political will for implementation of this project

Type of activity:	**Project - PR3.08**
Title of the activity	Training and certification for ICT literacy of the civil service
Area	E-Government, e-education
Reference	Objective 6 - increased number of ICT experts and increased level of ICT literacy in the civil service
Responsible Authority	The private sector, business community

Participants:	The state authority bodies, bodies of the local self-Government units, educational institutions and external subjects	
Activity Description	Civil servants in general terms, have a very low level of ICT literacy. For these reasons, and on the other hand, for the purpose of achieving efficient implementation of the set tasks, training and certification for ICT literacy is necessary.	
Expected Outcomes	Increased efficiency and efficacy of the employees	
Components:	1. Component 1	Defining of kind and way of training and education
	2. Component 2	Defining of certification
Preconditions	Existence of strong will for conducting of this concept of training	
Period of Implementation	Up to 12 months	
Financial projection	Up to 50.000 Euro	
	Critical factors for implementation	
Financial sources	The budge of the Republic of Macedonia, donations and other external sources	
Expert staff, human resources, necessary knowledge and expertise	Sufficient external expert personnel is available for conducting of this kind of training for the civil service	
Deadlines	24 months	
Monitoring of the Realisation	Through regular reports	
Risks	Absence of sufficient initiative and will for implementation of this concept, as well as of the needed financial means	

Type of activity:	**Project - PR3.09**
Title of the activity	Creation of portal of the Government of the Republic of Macedonia
Area	E-Government
Reference	Objective 6 - increased number of ICT experts and increased level of ICT literary in the civil service
Responsible Authority	Government, General Secretariat, Ministries
Participants:	The private sector through public tender
Activity Description	Implementation and redesign of the portal on the basis of adopted standards
Expected Outcomes	New portal of the Government of the Republic of Macedonia
Period of Implementation	Up to 6 months
Financial projection	Up to 3.000 Euro
	Critical factors for implementation
Financial sources	The budget of the Republic of Macedonia and donations from the private sector
Expert staff, human resources, necessary knowledge and expertise	There are available expert personnel and needed human resources
Development environment	Infrastructure and technical equipping
Technologies	Web-technology, XML
Deadlines	One year
Monitoring of the Realization	Through regular reports

Type of activity:	**Project - PR3.10**
Title of the activity	Equipping of the municipalities with at least 3 computers and unimpeded access to Internet and of the points of public access
Area	E-Government
Reference	Objective 2 - infrastructure at satisfactory level
Responsible Authority	Government, local self-Government
Participants:	The bodies of the local self-Government units, the private sector
Activity Description	Providing necessary equipment for the purpose of implementation of the projects as well as hiring a person for maintenance of the computers and conducting of training for the personnel in the municipalities
Expected Outcomes	Readiness of the bodies of the local self-Government units for implementation of the concrete projects
Period of Implementation	Up to 12 months
Financial projection	Up to 300.000 Euro
	Critical factors for implementation
Financial sources	The budget of the Republic of Macedonia, donations and other financial sources
Expert staff, human resources, necessary knowledge and expertise	There are available expert personnel and other human resources
Development environment	Infrastructure and technical equipping
Deadlines	One year
Monitoring of the Realisation	Through regular reports
Risks	Lack of sufficient financial means

Type of activity:	**Initiative - IN3.02**
Title of the activity	Initiatives for stimulation of use of services via internet and creation of contents
Area	E-Government,
Reference	Objective 3 - legal and institutional framework for development of the information society
Responsible Authority	Government of the Republic of Macedonia, CIT
Participants:	Administrative bodies, Ministry of Economy and other ministries
Activity Description	Promotion of this project through which increase of the usage of services via internet shall be stimulated.
Expected Outcomes	Drastic increase of the usage of the services via Internet
Preconditions	Existence of strong will in the administrative bodies
Period of Implementation	12 months
Financial projection	Up to 20.000 Euro
	Critical factors for implementation
Financial sources	The budge t of the Republic of Macedonia, private sector, donations and other external financial resources
Expert staff, human resources, necessary knowledge and expertise	Sufficient expert personnel and human resources are available for the implementation of the project
Development environment	Infrastructure and technical equipping

Technologies	Web-technology, XML
Monitoring of the Realisation	Through regular reports
Risks	Absence of sufficient strong will and determination among the administrative bodies for implementation of this project

Type of activity:	**Project - PR3.11**	
Title of the activity	Analysis of the requests made by the users in each body of the civil services, redesign and reorganization of the existing procedures in the operation of the civil service	
Area	E-Government	
Reference	Objective 5 - electronic and on-line transactions for e-Government services which stimulate the economic and social prosperity	
Responsible Authority	Government, General Secretariat, Ministries	
Participants:	Representatives of the civil services bodies	
Activity Description	It is essential that each body of the administration conducts an analysis of the business process and the client/user requests that it performs and responds to, for the purpose of preparation of the automation of the working processes and introduction of electronic operation.	
Expected Outcomes	Readiness for electronic operation	
Components:	1. Component 1	Defining of all work processes
	2. Component 2	Selection which process can be automated
Preconditions	Concrete intention and clearly expressed will by each civil service body to implement this project	
Period of Implementation	12 months	
Financial projection	500.000 euro	
	Critical factors for implementation	
Financial sources	Budget of the Republic of Macedonia, donations	
Expert staff, human resources, necessary knowledge and expertise	There are available expert personnel and other human resources	
Development environment	Infrastructure and technical equipping	
Monitoring of the Realisation	Through regular reports	
Risks	Lack of sufficient financial means and of sufficient efforts	

Type of activity:	**Project - PR3.12**
Title of the activity	Preparation and conducting of Governmental Sessions
Area	E-Government
Reference	Objective 6 - increased number of ICT experts and increased level of ICT literary in the civil service
Responsible Authority	Government, General Secretariat
Participants:	The private sector
Activity Description	Current manner of working of the Government needs to be changed and transition should be made towards electronic operation
Expected Outcomes	Complete automation of the preparation and management of the Sessions of the Government

Preconditions	Clear determination of the Government
Period of Implementation	Up to 12 months
Financial projection	Up to 50.000 Euro
	Critical factors for implementation
Financial sources	The budget of the Republic of Macedonia, the private sector
Expert staff, human resources, necessary knowledge and expertise	There are available expert personnel and other human resources
Development environment	Infrastructure ant technical equipping
Technologies	Web-technology, XML
Deadlines	One year
Monitoring of the Realisation	Through regular reports

Type of activity:	**Project - PR3.13**
Title of the activity	Prompt informing of amendments and questions posed by the Members of Parliament
Area	E-Government
Reference	Objective 6 - increased number of ICT experts, increased level of ICT literacy within the civil service
Responsible Authority	Government, General Secretariat, Parliament of the Republic of Macedonia
Participants:	The private sector
Activity Description	Accessibility to all information regarding the amendments and questions posed by the Members of Parliament
Expected Outcomes	Enabling of access of the citizens to up-to-date information regarding the amendments and the questions posed by the Members of Parliament
Period of Implementation	Up to 12 months
Financial projection	Up to 3.000 Euro
	Critical factors for implementation
Financial sources	The budget of the Republic of Macedonia, donations
Expert staff, human resources, necessary knowledge and expertise	There are available expert personnel and human resources
Development environment	Infrastructure and technical equipping
Technologies	Web-technology, XML
Deadlines	One year
Monitoring of the Realization	Through regular reports

Type of activity:	**Project - PR3.14**
Title of the activity	Creation of a web portal for e-legislation for suggestions and comments of laws and other regulations (e-legislation)
Area	E-Government, e-citizens
Reference	Objective 1 - participation of the citizens in the building of the information society
Responsible Authority	NGO
Participants:	The private sector

Activity Description	A constructive participation of all responsible authorities, lawyers, solicitors and scientists is necessary in the making of efficient legislation
Expected Outcomes	Creating legal acts of better quality
Period of Implementation	From 6 to 12 months
Financial projection	Up to 3.000 Euro
	Critical factors for implementation
Financial sources	Donations and other external financial sources
Expert staff, human resources, necessary knowledge and expertise	There are available sufficient expert personnel and human resources
Development environment	Infrastructure and technical equipping
Technologies	Web-technology, XML
Deadlines	One year
Monitoring of the Realization	Through regular reports

Type of activity:	**Project - PR3.15**	
Title of the activity	Setting-up of the physical infrastructure in the administrative institutions and ensuring access to internet	
Area	E-Government, infrastructure	
Reference	Objective 2 - infrastructure at sufficient level	
Responsible Authority	Government, ministries, local self-Government	
Participants:	External subjects, the private sector and internal resources of the civil service bodies	
Activity Description	Installing of the infrastructure at physical level is needed, i.e. the physical linking between all administrative bodies at state and at local level, between the Government, the civil service bodies and the bodies of the local self-Government	
Expected Outcomes	as first and important precondition for further implementation of the other projects it is expected that the administrative bodies shall be linked at physical level	
Components:	1. Component 1	Analysis of the current situation
	2. Component 2	Finding of the possible technical-technological solutions
	3. Component 3	Selection of the most favourable manner of implementation of the project
Preconditions	Firm resoluteness and determination at the highest level for the purpose of implementation of such complex project	
Duration of the implementation	From 24 to 36 months	
Financial projection	Up to 3.000.000 Euro	
	Critical factors for implementation	
Financial sources	The budget of the Republic of Macedonia, donations, other external financial sources	
Expert staff, human resources, necessary knowledge and expertise	Outsource personnel and needed human resources are available	

Technologies	Modern optical infrastructure
Deadlines	Up to three years
Monitoring of the Realisation	Through regular reports on the implementation of the project in phases
Risks	Absence of sufficient initiative and will for implementation of this concept, as well as lack of the needed financial means

Type of activity:	**Project - PR3.16**	
Title of the activity	Building a Logical infrastructure among the state institutions.	
Area	E-Government, infrastructure	
Reference	Objective 2 -. Infrastructure on a satisfactory level.	
Responsible authority	The Government, the ministries, the local self-Government	
Participants:	External entities, the private sector and in-house resources of the civil service bodies.	
Activity description	It is necessary to have logical infrastructure and connection of all the administration authorities on the bases of already decided upon concept of physical infrastructure, among the Government, the civil service bodies and the local self-Government units.	
Expected outcome	Developed and realized concept of logical infrastructure for connection of all the administration authorities.	
Components:	1.Component 1	Realization of all technical and technological solutions
	2. Component 2	Choice and implementation of technical solution
Preconditions:	Realized concept of physical infrastructure.	
Period of implementation:	From 12 to 24 months	
Financial projection:	Up to 1.000.000 Euro	
	Critical factors in the process of implementation	
Financial sources:	The budget of the RM, donations, other external financial sources	
Expert staff, human resources, necessary knowledge and expertise	Outsource expert staff and necessary human resources for realization of the project.	
Development environment:	Logical interconnection based on the IP-unified protocol	
Deadlines:	24 months	
Monitoring of the realisation:	Through current reports on the phase realization of the project.	
Risks:	Lack of enough incentives and will for realization of this concept, as well as lack of necessary financial means.	

Type of activity:	**Project - PR 3.17**
Title of the activity:	E-Procurement system
Area	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	The Government, the Ministry of Finance
Participants:	The private sector in close cooperation with the civil service bodies.

Activity description	The realization of the project implies finding solution for introduction of electronically centralized public procurement system.
Expected outcome	Greater transparency in the work of the Government regarding the public procurement.
Preconditions:	Clearly expressed political will for realization of this project.
Period of implementation:	Up to 12 months
Financial projection:	Up to 20.000 Euro
	Critical factors in the process of implementation
Financial sources:	The budget of the RM, donations
Expert staff, human resources, necessary knowledge and expertise	Outsource expert staff and necessary human resources for realization of the project.
Development environment:	Infrastructure and technical equipment.
Technologies:	Web technology, XML
Deadlines:	One year
Monitoring of the realization:	Through current reports
Risks:	Lack of strong enough will and determination in the administration authorities for the realization of the project.

Type of activity:	**Project - PR 3.18**
Title of the activity	Monitoring of the harmonization of the legislation of the Republic of Macedonia with the EU legislation.
Area	E-Government
Reference	Objective 3 - Legal and institutional framework for the development of information society.
Responsible authority	The Government, the General Secretariat - Sector for European Integration
Activity description	Continuous monitoring of EU legislation and the harmonisation of the legislation of the Republic of Macedonia with the EU legislation.
Expected outcome	Harmonisation of the legislation of the Republic of Macedonia with the EU legislation.
Period of implementation	Up to 18 months
Financial projection	Up to 10.000 Euro
	Critical factors in the process of implementation
Financial sources	Donations
Expert staff, human resources, necessary knowledge and expertise	There is the necessary expert staff and human resources
Deadlines	18 months
Monitoring of the realisation	Through regular reports

Type of activity:	**Project - PR3.19**
Title of the activity	Electronic supply of data to the State Statistical Office by the administration authorities and the institutions of the educational system (e-statistics).
Area	E-Government
Reference	Objective 5 - Electronic and online transactions for e-Governmental services giving impetuous to the economic and social prosperity. Objective 4 - Logical infrastructure form contemporary ICT solutions and networking of the Governmental institutions.

Responsible authority	The Government, CIT, the State Statistical Office.	
Participants:	The administration authorities and the institutions of the educational system.	
Activity description	Creation of joint queries and reports and provision of the necessary software.	
Expected outcome	More efficient exchange of official information and data provided by: • Rationalisation of the work in the state bodies ; • Reduced period from collection of data to their publishing; • Provision of grater data quality.	
Components:	1. Component 1	Establishing a list of data that can be a subject of electronic supply by the administration authorities and the institutions of the educational system to the State Statistical Office.
	2. Component 2	Definition of joint queries and reports covering the needs of both parties.
	3. Component 3	Adoption of the existing software or creation of new software enabling the electronic transfer of data from the administration authorities and the institutions of the educational system to the State Statistical Office.
Preconditions	Existence of IT infrastructure in the administration authorities and the institutions of the educational system supplying data to the State Statistical Office.	
Period of implementation	Within 14 months for the administration authorities and the institutions of the educational system having the IST infrastructure, and for the others within 14 months as of the moment of provision of ICT infrastructure.	
Financial projection	Up to 50.000 Euro	
	Critical factors in the process of implementation	
Financial sources	The Budget of the RM, donations	
Expert staff, human resources, necessary knowledge and expertise	For the State Statistical Office: • There is expert staff though not enough to cover all the current and planned activities; • For certain activities in the creation of the software it is necessary to engage outsource expert staff (not from the State Statistical Office) having the needed knowledge and expertise.	
Development environment	Infrastructure and technical equipment.	
Technologies	Web technology, XML	
Deadlines	Two years	
Monitoring of the realisation	Percentage of data supplied electronically (out of the total number of data that were not supplied electronically before the beginning of the project).	
Risks	- Not sufficient determination of the involved parties; - Lack of provision of the necessary financial means.	

Type of activity:	**Project - PR3.20**	
Title of the activity:	Electronic online dissemination of statistical data from the State Statistical Office to the beneficiaries.	
Area:	E-Government	
Reference	Objective 5 - Electronic and online transactions for e-Governmental services giving impetus to the economic and social prosperity.	
Responsible authority	State Statistical Office	
Activity description	Creation of an out-put databases and web page for electronic distribution of statistical data from the State Statistical Office.	
Expected outcome	Achievement of a greater efficiency in the work of the administration authorities, other entities and all the beneficiaries by up-dated and fully accessible databases.	
Components:	1. Component 1	Creation of a meta databases
	2. Component 2	Creation of an out-put dissemination database
	3. Component 3	Creation of a web page
Period of implementation:	In succession over a period of 5 years.	
Financial projection:	Up to 20.000 Euro	
	Critical factors in the process of implementation	
Financial sources:	The Budget of the Republic of Macedonia ,donations	
Expert staff, human resources, necessary knowledge and expertise	There is expert staff though not enough to cover all the current and planned activities; For certain activities in the creation of the software it is necessary to engage outsource expert staff (not from the State Statistical Office) having the needed knowledge and expertise..	
Development environment:	Infrastructure and technical equipment	
Technologies:	Web technology, XML	
Monitoring of the realisation:	Percentage of data supplied electronically to the beneficiaries (out of the total number of statistical data that were provided by the State Statistical Office in accordance with the Programme for Statistical Surveys).	
Risks:	Lack of provision of the necessary financial means and enough expert staff.	

Type of activity:	**Project - PR3.21**
Title of the activity:	One stop shop for company registration.
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	Central Register
Participants:	The private sector
Activity description	Need of automating the whole process of company registration.
Expected outcome	Achievement of one stop shop system.
Period of implementation:	Up to 18 months
Financial projection:	Up to 10.000 Euro

	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, the private sector
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment.
Technologies:	Web technologies, XML.
Deadlines:	24 months
Monitoring of the realization:	Through regular reports

Type of activity:	**Project - PR 3.22**
Title of the activity:	E -Taxation system.
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	The Government, the Ministry of Finance
Participants:	Representatives of the admonition authorities, the private sector.
Activity description	Enabling electronic payment of taxes.
Expected outcome	Increase of the efficiency in the payment of taxes
Period of implementation:	Up to 18 months
Financial projection:	Up to 100.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, the private sector.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment
Technologies:	Web technologies, XML
Deadlines:	24 months
Monitoring of the realization:	Through current reports.

Type of activity:	**Project - PR3.23**
Title of the activity:	E-Budget system
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	The Government, the Ministry of Finance
Participants:	Representatives of the admonition authorities, the private sector.
Activity description	It is necessary to monitor the spending of the budgetary means electronically.
Expected outcome	Transparent way of allocation of budgetary means and direct monitoring of their spending.
Period of implementation:	Up to 18 months
Financial projection:	Up to 10.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, the private sector

Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources
Development environment:	Infrastructure and technical equipment
Technologies:	Web technologies, XML
Deadlines:	24 months
Monitoring of the realization:	Through current reports.

Type of activity:	**Project - PR3.24**
Title of the activity:	Measuring the quality of the IST literacy.
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	The Government, the ministries
Participants:	Civil Servants' Agency, the private sector in cooperation with the civil service bodies.
Activity description	It is necessary to have parameters for measuring the quality of ICT literacy, i.e. the level of the technical culture.
Expected outcome	It is expected to get a measurable parameter for the degree of the ICT literacy in the public administration.
Period of implementation:	Up to 24 months.
Financial projection:	Up to 20.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources
Deadlines:	24 months
Monitoring of the realization:	Through current reports.

Type of activity:	**Project - PR3.25**	
Title of the activity:	Establishment of a register of all the databases (registers) in the state institutions - central registers.	
Area:	E-Government	
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.	
Responsible authority	The Government, CIT, the ministries	
Participants:	Representatives of the administration authorities.	
Activity description	It is necessary to establish one central register of all the data - central database, by integrating all the databases of the state institutions.	
Expected outcome	Establishment of one central database.	
Components:	1. Component 1	Establishment of databases individually in each administration authority.
	2. Component 2	Analyses of the way of integration of the individual databases.
	3. Component 3	Establishment of a central database.

Preconditions:	Complete readiness and clear position of all the administration authorities regarding the realization of the project.
Period of implementation:	From 24 to 36 months
Financial projection:	Up to 300.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations and other external financial means
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment.
Technologies:	Web technologies, XML
Deadlines:	Three years
Monitoring of the realization:	Through current reports.

Type of activity:	**Project - PR3.26**
Title of the activity:	E-Government solutions.
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	The Government
Participants:	The private sector
Activity description	Concrete solutions by integrating the mobile telephony (currently, there is a greater percentage of mobile telephone users in the state than Internet users).
Expected outcome	Increase of the efficiency in the work of the civil administration.
Period of implementation:	From 24 to 36 months.
Financial projection:	Up to 100.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, the private sector.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment.
Deadlines:	Three years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.27**
Title of the activity:	Introduction of standards for protection of information systems ISO 17799.
Area:	E-Government
Reference	Objective 3 - Legal and institutional framework for the development of information society.
Responsible authority	The Government, the ministries

Participants:	Representatives of the civil service bodies, the Ministry of Defence, the Ministry of Interior, Directorate for Protection of Classified Information
Activity description	The information systems must meet the strict standards regarding protection and security.
Expected outcome	Meeting the world standards for protection of the information systems.
Period of implementation:	From 24 to 36 months.
Financial projection:	Up to 500.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations and other financial sources.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment.
Deadlines:	Three years
Monitoring of the realization:	Through current reports.

Type of activity:	**Project - PR3.28**
Title of the activity:	Defining standards for minimal ICT infrastructure.
Area:	E-Government
Reference	Objective 2 -. Infrastructure on a satisfactory level.
Responsible authority	The Government, the local self-Government.
Participants:	The organs of the self-Government units, the private sector
Activity description	It is necessary to define the minimum standards as precondition for realization of the infrastructure and management of the information system on a local level.
Expected outcome	Infrastructure readiness for realization of the following projects on a local level.
Period of implementation:	From 24 to 36 months
Financial projection:	Up to 20.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations and the private sector.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources
Development environment:	Infrastructure and technical equipment.
Deadlines:	Two years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.29**
Title of the activity:	Introduction of the ISO 9001 standard and quality of the Governmental services.
Area:	E-Government
Reference	Objective 3 - Legal and institutional framework for the development of information society.

Responsible authority	The Government, CIT
Participants:	Representatives of the Government, the General Secretariat, the private sector.
Activity description	In order to meet the quality of the Governmental services it is necessary to introduce the ISO 9001 standard.
Expected outcome	Getting standardized Governmental services.
Period of implementation:	From 24 to 36 months.
Financial projection:	Up to 300.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations and the private sector.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Deadlines:	Three years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.30**
Title of the activity:	Granting official e-address to the citizens.
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	The Government, the Ministry of Interior
Participants:	Representatives of the administration authorities, the private sector.
Activity description	Something like granting SBRN (Single birth registration number), granting official e-address to the citizens.
Expected outcome	Realization of the project.
Period of implementation:	From 3 to 4 years.
Financial projection:	Up to 100.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment.
Technologies:	Web technologies, XML
Deadlines:	Four years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.31**
Title of the activity:	Geographic information system - GIS
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	Cadastre
Participants:	Representatives of the civil service bodies, organs of the self-Government units, the private sector, other external entities.

Activity description	Development of an integrated and joint geographical information system.
Expected outcome	Realized project by obtaining powerful and efficient GIS applicable for every entity.
Period of implementation:	From 3 to 4 years
Financial projection:	Up to 1.000.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, other external financial sources.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources
Development environment:	Infrastructure and technical equipment
Technologies:	Web technologies, XML
Deadlines:	Four years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.32**
Title of the activity:	Possibility of exchange of data created in (or for) individual state institutions and organs with the other institutions in the country - INSPIRE initiative.
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	The Government, the ministries
Participants:	The private sector and the representatives of the administration authorities.
Expected outcome	Realization of the project.
Period of implementation:	From 3 to 4 years.
Financial projection:	Up to 20.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, the private sector.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment.
Technologies:	Web technologies, XML.
Deadlines:	Four years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.33**
Title of the activity:	Standardization in the creation of data model for urban plans (GUP a nd DUP)
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.

Responsible authority	Cadastre
Participants:	Representative of the administration authorities, public enterprises performing activities in regard to the spatial planning, the private sector.
Activity description	Introduction of the standard for creation of data model for the municipalities, as well as Spatial Plan for the Republic of Macedonia.
Expected outcome	Obtaining a standardized way of creation of data model.
Period of implementation:	From 3 to 4 years.
Financial projection:	Up to 200.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, the private sector.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment.
Deadlines:	Four years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.34**
Title of the activity:	Digital integrated cadastre of the Republic of Macedonia
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	Cadastre
Participants:	Representative of the administration authorities, public enterprises performing activities in regard to the GIS, the private sector.
Activity description	Obtaining digital integrated cadastre, under the competence of the SAGW - State Authority for Geodesic Works (envisaged project of the World Bank).
Expected outcome	Digitalization of all the data issued by the cadastre.
Period of implementation:	From 24 to 36 months.
Financial projection:	Up to 500.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, other external financial sources, the private sector.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment
Technologies:	Web technologies, XML
Deadlines:	Three years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.35**
Title of the activity:	GIS - web portal for the available state land.
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.

Responsible authority	The Government of the RM
Participants:	Representatives of the administration authorities, the private sector.
Activity description	Enabling to be acquainted with the available state land offered for sales. The result would be transparency in the work, as well as bigger profit from the sales.
Expected outcome	Transparency in the work.
Period of implementation:	From 3 to 4 years
Financial projection:	Up to 10.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, other external financial sources, the private sector.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment
Technologies:	Web technologies, XML
Deadlines:	Three years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.36**
Title of the activity:	Protection of natural resources, the environment and the natural national wealth by creation of a GIS - database.
Area:	E-Government
Reference	Objective 6 - Increased number of ICT experts and increased level of ICT literacy in the public administration.
Responsible authority	The Government, the ministries
Participants:	The private sector and the representatives of the administration authorities.
Activity description	Creation of a GIS - database for analyses that have not been performed so far in the country like: waste management, control over sound and visual pollution, creation of marsh routes in the transport of dangerous materials and alike, for which there is a demand by the EU.
Expected outcome	Obtaining a GIS database.
Period of implementation:	From 3 to 4 years
Financial projection:	Up to 20.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, other external financial sources, the private sector.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources
Development environment:	Infrastructure and technical equipment
Technologies:	Web technologies, XML
Deadlines:	Three years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.37**
Title of the activity:	Project for the Ministry of Interior and the security services.
Area:	E-Government
Reference	Objective 3 - Legal and institutional framework for the development of information society.
Responsible authority	MI
Participants:	Representatives of the administration authorities, Customs Administration of the Republic of Macedonia.
Activity description	Realization of integrated security communication and information systems.
Expected outcome	Increase in the effectiveness and efficiency.
Period of implementation:	From 24 to 36 months
Financial projection:	Up to 5.000.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM, donations, other external financial sources.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Development environment:	Infrastructure and technical equipment.
Technologies:	Web technologies, XML
Deadlines:	Three years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.38**
Title of the activity:	Adoption of national policy on information and communication security.
Area:	E-Government
Reference	Objective 3 - Legal and institutional framework for the development of information society.
Responsible authority	Directorate for Protection of Classified Information
Participants:	Representatives of the Government, the Ministry of Defense, the Ministry of Interior, the Ministry of Foreign Affairs, Intelligence Agency, the Ministry of Transport and Communications, the private sector.
Expected outcome	Adoption of national policy on information and communication security
Period of implementation:	Up to 6 months.
Financial projection:	100.000 euro
	Critical factors in the process of implementation
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Deadlines:	Six months
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.39**
Title of the activity:	Security certification of the information and communication systems for classified information processing.
Area:	E-Government
Reference	Objective 3 - Legal and institutional framework for the development of information society.
Responsible authority	Directorate for Protection of Classified Information
Participants:	Representatives of the Government, the Ministry of Defense, the Ministry of Interior, the Ministry of Foreign Affairs, Intelligence Agency, the Ministry of Transport and Communications, the private sector.
Activity description	It is an obligation of the Directorate for Protection of Classified Information to carry out security certification of the information and communication systems for classified information processing.
Period of implementation:	Up to 24 months
Financial projection:	Up to 100.000 Euro
	Critical factors in the process of implementation
Financial sources:	The Budget of the RM.
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Deadlines:	Two years
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.40**
Title of the activity:	Establishment of a National Body for information and communication security.
Area:	E-Government
Reference	Objective 4 - Logical infrastructure form contemporary ICT solutions and networking of the Governmental institutions.
Responsible authority	The Government
Participants:	Representatives of the administration authorities, the private sector.
Activity description	It is a legal obligation of the Government to establish a National Body for information and communication security.
Expected outcome	Establishment of a National Body for information and communication security.
Period of implementation:	Up to 6 months
Financial projection:	200.000 euro
	Critical factors in the process of implementation
Expert staff, human resources, necessary knowledge and expertise	There is expert staff and human resources.
Deadlines:	Six months
Monitoring of the realization:	Through current reports

Type of activity:	**Project - PR3.41**	
Title of the activity:	Social protection information system implementation	
Area:	e- Government	
Reference	Infrastructure, O1.03	
Responsible authority	Ministry of labor and social policy	
Participants:	Ministry of labor and social policy, Social Welfare Centers	
Activity description	Implementation of electronic centralized system for cash benefits and social services	
Expected outcome	Database of cash benefits and social protection services, electronic communication between the Ministry and other public institutions and data exchange, better financial accounting, control and reporting	
Components:	1. Application software development	Software for cash benefit eligibility determination, finance and accounting, social work inspection
	2. Network infrastructure	Connecting the Ministry with the Social Welfare Centers and other public institutions
	3. New equipment	New hardware and operating software installation
	4. Training	Training courses for IT stuff
Period of implementation:	2004-2008	
Financial projection:	1.400.000 USD	
	Critical factors in the process of implementation	
Financial sources:	Loan and Budget of RM	
Expert staff, human resources, necessary knowledge and expertise	Local and foreign consultants and IT companies	
Technologies:	Technical standards development, technology in compliance with the recommendations of EU	
Monitoring of the realisation:	Indicators	
Risks:	Problems with implementation	

4.4 E-EDUCATION

Type of activity:	**Project - PR4.01**	
Title of the activity:	Proteus - portal for sublimating all the activities in the area of the e-education.	
Area:	E- education (O1)	
Reference	E-Government	
Responsible authority	Agency for Information Society.	
Participants:	• Ministry of Education and Science; • ICT company (deliverer of the solution); • national and foreign donors (beneficiaries).	
Activity description	The existence of many donations and numerous projects for increase of the IT use in all segments of the education that are most often not coordinated and not standardised, implies a strong need of coordination and monitoring of these activities from one central point where information can be received for the various activities that are on going, as well as for those that are to begin with the realisation in the established strategy. Briefly, the Proteus portal will be the sublimate of all the IT activities in the area of education.	
Expected outcome	- Database for the activities in the area of application and use of the ICT in the education; - more appropriate coordination, alignement and control over the activities; - greater transparency.	
Components:	1. Standards	Adoption of standards for identification and registration of existing projects.
	2. Creation of the solution	Design, creation and implementation of dynamic web-solution.
Preconditions:	It is necessary to have legislation binding all those that have on going or planned future projects in the area of the education to register the projects, stating the necessary information on the objectives of the projects and on the expected outcome.	
Period of implementation:	3-6 months initial implementation Continuous activity.	
Financial projection:	- 30.000 Euro for creation; - 3000 Euro per year for maintenance.	
	Critical factors in the process of implementation	
Financial sources:	Foreign Donations; State budget; % from the reported projects.	
Expert staff, human resources, necessary knowledge and expertise	Use of ICT company that will realise the solution. It will be maintained by ICT experts in the Information Society Agency or by the company that realised the solution.	
Development environment:	Web application	
Technologies:	- Web server where the portal would be hosted; - Adoption of the European standards for creation of portals for monitoring and keeping record of projects.	

Deadlines:	Continuous activity
Monitoring of the realisation:	The Information Society Agency will monitor the creation of the solution in accordance with the previously compiled specification on the functionality of the portal.
Risks:	Inefficient maintenance of the portal thereby losing its function that it is supposed to have.

Type of activity:	**Project - PR4.02**	
Title of the activity:	Broadband interconnection of the science and research, educational and cultural institutions and connection of MARNET with the European Academy network GEANT and the global Internet.	
Area:	E-education (O1, O3)	
Reference	Infrastructure	
Responsible authority	MARNET - Macedonian Academy and Research Network (Universities)	
Participants:	• Ministry of Education and Science; • Ministry of Transport and Communication; • Telecommunications Directorate; • Macedonian Telecommunications; • Internet providers; • beneficiaries (elementary schools, high schools and universities).	
Activity description	Having this kind of development, the network would provide continuous, cost-effective and qualitative transmission of information among the entities, as well as with the other educational entities in the world. Alongside the interconnection of the listed institutions in the country, it is also of great importance to support and join the action plans in the region and the appropriate EU projects in the area of quick networks.	
Expected outcome	- Quick data transmission among the entities in the education from the country and the other entities from the neighbouring countries and wider; - creation of conditions for development, use and application of the ICT in the educational process.	
Components:	1. Component 1	Broadband interconnection of the educational, scientific and cultural entities.
	2. Component 2	Connection of MARNET with the European academy network GEANT.
	3. Component 3	Connection of the educational, scientific and cultural entities on Internet.
Preconditions:	Identification of the existing infrastructure among the entities.	
Period of implementation:	4 years	
Financial projection:	3.500.000 euros for 4 years	
	Critical factors in the process of implementation	
Financial sources:	- HIPERB program for Balkan region reconstruction (2.300.000 euros) - European Union-DANTE project - GEANT (600.000 euros) - State budget (600.000 euros); - Foreign donations and international funds	

Expert staff, human resources, necessary knowledge and expertise	The project will be realised with the existing experts from the university, MARNET and private ICT companies.
Development environment:	- Strategic goal of the European Union in the development of Information society is support and development of the national academic networks, through their financing, number of documents, declarations and political decisions. The European Union under the fifth and sixth framework is financing the development if the fast academic networks through GEANT project - following the fast development of the academic networks in the neighboring countries - Active involvement of the educational subjects - Development of the detailed plan for the project realization
Technologies:	- Analyses of the current network infrastructure, hardware and software equipments which MARNET and the others educational institutions have. - Procurement and installation of new equipment: new optical cables, renting existing optical cables, active equipment based on WDM, procurement of wireless systems based on OFDM, WiMAX, WiFi
Deadlines:	Continuous process
Monitoring of the realisation:	The realisation will be analysed by monitoring the indicators for speed of the communication among the entities, as well as by the number of entities connected to the Internet.
Risks:	Untimely staffing, developing the staff in professionals and financial stability of MARNET.

Type of activity:	**Project - PR4.03**
Title of the activity:	Supplying all the educational, scientific and cultural institutions with appropriate ICT equipment and introduction of normative on exchange of information.
Area:	E-education (O2)
Reference	Infrastructure
Responsible authority	Ministry of Education
Participants:	• Information Society Agency; • business sector (ICT companies); • MARNET; • Macedonian Telecommunications.
Activity description	The project is to supply appropriate ICT equipment in the educational, scientific and cultural institutions, which is the only precondition for the use of the services in the information society. Meeting the standards set by the European Union for the number of computers per student , the number of studnents using the Internet, the number of teachers whose profession is different than IT and use of IT equipment, should be a qualitative measure for the achieved results.
Expected outcome	Improvement of the educational process through the use of ICT, as well as meeting the standards set by the European Union.

Components:	1. Terms of reference	Terms of reference for equipment of all the educational, scientific and cultural institutions by defining the necessary hardware and software. Defining the standards and normatives on exchange of information.
	2. Implementation	Implementation of the computer equipment and software defined in the previous phase.
Preconditions:	Interconnection of institutions, existence of Intranet.	
Period of implementation:	2-3 years	
Financial projection:	3.000.000-5.000.000 Euros	
	Critical factors in the process of implementation	
Financial sources:	• Foreign donations; • The Budget of the RM; • The own means of the institutions	
Expert staff, human resources, necessary knowledge and expertise	The project will be realised by the assistance of the experts from the universities and the private ICT companies.	
Development environment:	- Analysing the current conditions with ICT in education subjects. - Development of detailed plan for implementation and monitoring of project activities.	
Technologies:	Networking, servers, working stations, printers, presentation equipment, (video beams), software.	
Deadlines:	Continuous process.	
Monitoring of the realisation:	The Ministry is to monitor the realisation of the project by following the standards set by the EU for the number of computers per student, the number of students having access to the Internet etc.	
Risks:	Not coordinated activities for networking, supply of hardware and software equipment.	

Type of activity:	**Project - PR4.04**
Title of the activity:	Development of e-contents in the curricula
Area:	E-education (O15, O16)
Responsible authority	Ministry of Education and Science
Participants:	• Information Society Agency; • Universities; • Elementary and high schools.
Activity description	Development of contents giving impetus to the use of the ICT and fulfillment of its possibilities in the preferment of the lessons in the education.
Expected outcome	- Increased productivity and more efficient education; - Improvement of the quality of the lessons; - Increasing the ICT literacy; - Increase of the number of ICT users.

Components:	1. Analyses	Analyses of the existing practice for the use of e-contents, defining standards for their development.
	2. Realisation	Realisation of unified e-contents that are to be applied in the educational process.
	3. Campaign on continuous development	Marketing campaign assisted by the authors of the iterature and the participants in the educational process themselves having concrete motivation for development of the contents.
Preconditions:	It is necessary to have hardware and software equipment in the educational, scientific and cultural facilities.	
Period of implementation:	Continuous process	
Financial projection:	200.000 Euros at the beginning. 50.000 - 100.000 Euros per year	
	Critical factors in the process of implementation	
Financial sources:	- Foreign donations - Ministry for education and science - Finances gathered from commercial use of the developed content	
Expert staff, human resources, necessary knowledge and expertise	Private ICT companies that would work on the technical part, as well as training of the participants in the educational process on the development of e-contents.	
Development environment:	- Standardisation of the content and possibility for easy access to them needs to be provided. - These conditions can be made in the same project with definition of standards for content development - Development of software for use of the developed content.	
Deadlines:	Continuous process	
Monitoring of the realisation:	Continuous monitoring by the Ministry of Education and Science on the standards of creation of e-contents and their application in the educational process.	
Risks:	Lack of infrastructure for e-contents and not enough ICT literacy.	

Type of activity:	**Project - PR4.05**
Title of the activity:	Development of the existing higher education ICT orientations into faculties.
Area:	E-education (O10)
Reference	Legislation
Responsible authority	Ministry of Education and Science
Participants:	• Ministry of Justice; • Universities
Activity description	In order to have successful profiling of ICT specialists that are going to be the bearers of the information society development it is necessary to redefine the status of the existing educational institutions that are profiling ICT staff and to develop themselves into independent faculties. It is necessary to make a distinction between applicative and scientific directed education of ICT specialists, as well as to stimulate educational profiles of ICT specialists on many levels (advanced, higher, certified) and to align the specialists according to their field of specialisation.

Expected outcome	Increased number of ICT specialists.	
Components:	1. Analyses	Analyses of the need to redefine the status of the existing institutions and to the need to educate ICT staff by certain specialists.
	2. Legislation	Adoption of the necessary legislation in order the existing institutions to develop into faculties
Period of implementation:	12-24 months	
Financial projection:	1.000.000 Euros	
	Critical factors in the process of implementation	
Financial sources:	The Budget of the RM	
Expert staff, human resources, necessary knowledge and expertise	The universities will provide all the necessary resources for successful completion of the project.	
Deadlines:	1-2 academic years	
Monitoring of the realisation:	The Ministry of Education and Science is to monitor the activity and to make an analysis on the bases of determining the number of ICT staff educated by these institutions.	

Type of activity:	**Project - PR4.06**
Title of the activity:	E-technologies Centre
Area:	Universities (ICT faculties), private sector
Reference	E-education (O2, O5, O6, O11, O14)
Responsible authority	E-Business, e-Government, e-health, Infrastructure, e-citizens
Participants:	• Universities (ICT faculties); • MASIT; • Governmental institutions.
Activity description	In the Republic of Macedonia lacks experience on development of e-projects. Therefore it is necessary from the beginning to establish a framework and standardisation on how to develop and monitor that kind of projects. It is necessary to prepare development and monitoring methodology on these projects. In the contrary a lot of means would be spent without achieving any adequate results. Having this in mind, it is also necessary to provide: laboratory (test-bed) for e-technologies (hardware, standard and wireless networks, software), defining the e-standards, development methodology and project management of e-projects and e-applications, modeling methodology, testing and assessment of the performances of e-solutions and equipment, testing and certification of e-projects and e-solutions, defining a curricula on training of the staff on e-technologies and certification.
Expected outcome	- Defined standards on e-technologies; - Increase of the quality on the implemented ICT solutions; - certified ICT staff on e-technologies.
Preconditions:	Establishment of a laboratory (test-bed) for e-solutions.
Period of implementation:	1.5 years for development, continuous work over the whole life cycle of the e-projects defined in the Strategy.
Financial projection:	Initially: 300.000 - 350.000 Euro; - continuously: 150.000 Euro per year
	Critical factors in the process of implementation
Financial sources:	Donors, the Government of the RM, MASIT, world ICT companies.

Expert staff, human resources, necessary knowledge and expertise	There are experts at the universities, in the private and in the Governmental sector that would implement this activity. The members of the Center would receive additional knowledge on the detailed implementation through the trainings organised for them. Also top world consultants will be engaged.
Technologies:	Network infrastructure, hardware, e-software, development tools for e-application, software for modeling business processes and e-technological implementations, testing, comparative analyses of e-solutions between the European countries and the USA, world and Macedonian e-standards, classroom and laboratory for training of e-staff.
Deadlines:	Immediately
Monitoring of the realisation:	Gant-diagram is to be created to monitor the realisation of the activities and to submit the agreed reports on the implementation.
Risks:	Lack of provision of means, not beginning on time, lack of coordination among the participants.

Type of activity:	**Project - PR4.07**	
Title of the activity:	Digitalisation and presentation of the cultural, historical, archeological and ethnological heritage.	
Area:	E-education (O15, O16)	
Responsible authority	Ministry of Culture	
Participants:	• Monument Protection City Offices; • Ministry of Culture; • Digitalisation Centres.	
Activity description	Massive digitalisation of the movable and non movable heritage of the Republic of Macedonia. The project is to provide conditions on the improvement of the heritage protection, as well as easier access to the information for the project.	
Expected outcome	Collection and categorisation of information for cultural, historical, archeological and ethnological heritage. Publically accessible resource in databases. Digitalised collections of cultural heritage.	
Components:	1. Organisation	Establishing a consortium in which representatives of all the relevant factors from the area of cultural protection will participate.
	2. Analyses	Analyses of the continuous status and defining the digitalisation standards.
	3. Digitalisation	Digitalisation and archiving of the cultural, historical, archeological and ethnological heritage.
Period of implementation:	5-10 years	
Financial projection:	500 000 Euro per year	
	Critical factors in the process of implementation	
Financial sources:	- Ministry of Culture; - Foreign donations.	
Expert staff, human resources, necessary knowledge and expertise	The digitalisation, categorisation and archiving of the documentation will be performed by national experts.	

Development environment:	Existence or adaptation of a law for archiving the cultural heritage in digital form, and providing the opportunity for interoperation between the users of those data.
Technologies:	Digitalisation technologies, processing of the materials and technologies for creation of web solutions thereby making the data accessible to the general public.
Deadlines:	Continuous process.
Monitoring of the realisation:	The Ministry will monitor the digitalisation process through percentage analyses of the assumed quantity of information obtained by the analysis.
Risks:	Not existing standardised ways for categorize the cultural heritage. Not existing enough ICT equipment and ICT literacy in the institutions which are responsible for protecting the cultural heritage.

Type of activity:	**Project - PR4.08**	
Title of the activity:	Development of systems and tools for distance learning and open forms of education.	
Area:	E-education (O9)	
Responsible authority	Information Society Agency	
Participants:	• Ministry of Education and Science; • Universities; • Private ICT companies; • MARNET	
Activity description	The development of alternative forms of education is inevitable in a knowledge based society where the possibility of training should be available at any time and from any place. The project is to provide standards, applications and tools for implementation of these forms of education.	
Expected outcome	- Alternative forms of education; - Quicker and more efficient education based on the needs on those that are learning; - Mobile education; - Increase of the quality of the contents.	
Components:	1. Study	- Establishment of the needed systems and tools for specification of their functionalities; - Establishment of standards that these systems are to be implemented.
	2. Creation	Creation of technological solutions.
	3. Implementation	Supply of the necessary equipment, implementation and testing of the technical solutions.
Preconditions:	It is necessary to have legal framework on the application of tools for distance learning in the educational process.	
Period of implementation:	2 years	
Financial projection:	1.000.000 Euro	
	Critical factors in the process of implementation	
Financial sources:	- EU projects; - Investment in the ICT business.	

Expert staff, human resources, necessary knowledge and expertise	Local ICT experts and private ICT companies will participate in defining the standards, in the change of the legal regulation and in the development and implementation of solutions.
Development environment:	The use of the systems and the tools should start and be coordinated at the Universities. It would be beneficial if the academic research network MARNET is involved in the project which can provide the necessary infrastructure.
Technologies:	During the development and the implementation processes Web technologies should be used, and Web server should be used form application hosting.
Deadlines:	The design and the development should start as soon as possible. Version of the tools should be implemented in 1 year period, and testing period should last for 1-2 academic semesters.
Monitoring of the realisation:	The Agency for information technology should provide continues monitoring of the realisation of the project, through allocating own resources or using the resources from the companies which will be responsible for development and implementation of the systems and tools.
Risks:	Insufficient ICT existence in institutions which should use those systems and tools, and insufficient ICT literacy in those institutions.

Type of activity:	**Project - PR4.09**
Title of the activity:	Macedonian Educational Management Information System and portal development.
Area:	E-Education (O4)
Reference	Infrastructure, e-Government
Responsible authority	Ministry of Education and Science
Participants:	• Information Society Agency; • Private business (ICT companies), (creation of solution); • Central Register; • Universities; • Educational institutions; • National University Library.
Activity description	Creation of central information system of the academy citizens, of scientific and research activities, of the cultural institutions. This central information system will enable creation of electronic dossiers of every citizen that was involved in the educational process. The dossiers would contain information for all the activities in which the citizen participated. Appropriate creation of an electronic dossier for the teachers thereby their scientific and research work can be monitored in a simple way. In the light of an easier access to information from the system a portal solution is to be developed having various access levels. The portal is to be the only access spot to all the activities of the employees in the academy institutions and their achievements.
Expected outcome	- Improvement of the administration activity in all the segments of the educational system and enabling quick information for all the scientific and research activities; - More clearer overview and easier way of obtaining information for all

	the entities in the educational system; - Precise and up dated record of the resources and the staff in the educational system.	
Components:	1. Standards	Adoption of standards for exchange of information.
	2. Software solution	Design, creation and implementation of software solution based on centralised database.
	3. Creation of a portal	Portal for easier access to the information from the information system.
Preconditions:	- Completion of the projects for interconnection of all the institutions on the Internet; - Existence of central information system on a state level.	
Period of implementation:	24 months	
Financial projection:	300.000 Euro.	
	Critical factors in the process of implementation	
Financial sources:	- Means from the Universities; - The Budget of the Republic of Macedonia - Foreign donations.	
Expert staff, human resources, necessary knowledge and expertise	The university professors will be included in the process of defining the functionalities and creation of the system that can be realised by local ICT company.	
Technologies:	Development of web based solution, and use of database which will be able to handle the necessary amount of data and can provide proper levels of security.	
Deadlines:	Plan for realisation of the solution should be developed as soon as possible. That plan should be sent to all subjects which will use the system, and after the approval the development of the applicative solution should start. Its implementation and testing are next steps.	
Monitoring of the realisation:	The realisation should be monitored from independent body which will monitore the implementation, the security and the way the system is used by the subjects in education	
Risks:	Uncoordination between subjects in education. This system should be accepted and supported by all these subjects, especialy from the ministry of education and science	

Type of activity:	**Project - PR4.10**
Title of the activity:	ICT Education for all
Area:	E-education (O12, O13)
Reference	E-citizens
Responsible authority	Ministry of Education and Science
Participants:	• Universities (training of trainers) • Certified centers (training the population); • Non-Governmental organisations; • National Techniques of Macedonia (NGO on technology development).
Activity description	A project of this kind will aim at increasing the use and application of the information technology in the everyday life by education of all the

	structures of the population. Introduction of the IT education since the elementary school and increasing the number of subjects in all high schools (no matter their orientation), as well as obligatory IT education for all students in Macedonia are steps that the entities involved in the formal education have to undertake. For those that are not involved in the formal education free or not very expensive courses are to be introduced by certified institutions where they can receive the elementary education necessary for using the information technology. Realisation of summer training schools is one of the activities that can be part of this project.	
Expected outcome	Enabling the citizens to use ICT and their active participation in the knowledge-based society.	
Components:	1. Analyses	An analysis of the current level of the ICT education and the number of citizens that are to participate in the training.
	2. Establishing training centres	Establishing accredited centres that are to perform the training of the citizens by defining the conditions that are to be fulfilled by these centres.
	3. Training	Performing the training in the centres established for that purpose.
Preconditions:	Existence of centres that will perform training of the citizens for elementary ICT literacy.	
Period of implementation:	- initially 6-9 months; - continuous activity.	
Financial projection:	200.000 Euros (Phase 1 and 2), 50.000 Euros a year	
	Critical factors in the process of implementation	
Financial sources:	- Ministry of education and science - Participation from the citizens which will be enrolled in the training	
Expert staff, human resources, necessary knowledge and expertise	National experts will be included in the performance of the training.	
Development environment:	Law which will regulate the employments in the state administration and in the education system concerning the ICT knowledge which needs to be possessed by the employees.	
Technologies:	ICT equipment is needed for the training, as well as systems and tools for easier and simpler conducting of the training.	
Deadlines:	Continuous process	
Monitoring of the realisation:	Report on the number of citizens that participated in these centres and reports on the issued certificates for ICT knowledge.	
Risks:	- Inexistence of criterias and standards which will measure the level of ICT knowledge - Insufficient use and existence of ICT in education and in the others segments of living	

Type of activity:	**Project - PR4.11**
Title of the activity:	Introduction of local and European certificates.
Area:	E-education (O14)
Reference	E-Government

Responsible authority	Information Society Agency	
Participants:	• Ministry of Education and Science; • Line ministries; • Universities; • Certified educational centres; • Civil Servants Agency.	
Activity description	The ICT use is a basic precondition for active participation in a knowledge-based society. Therefore all the citizens should posses the elementary skills for using the ICT. The introduction of certificates will enable to easily check whether someone possesses the necessary skills. Alongside the adoption of the European certificates, the project is to consider the possibility of introducing local certificates.	
Expected outcome	Establishing the minimum of ICT knowledge that every employee in the civil service has to posses, as well as the citizens for their active participation in a knowledge-based society.	
Components:	1. Establishing the necessary knowledge	Acquiring the necessary knowledge for obtaining certificates in various fields.
	2. Establishing accreditation standards	Establishment of the standards that the centres performing the certification of the citizens for ICT knowledge have to meet.
	3. Accreditation of centres	Defining the procedures for obtaining accreditation.
	4. Training on certification	Performing training and testing for issuing certificates.
Preconditions:	Change in the legislation for existence of certification centres which certificates will be valid on a state level and wider.	
Period of implementation:	12 months	
Financial projection	Initial investment of 50.000 Euro.	
	Critical factors in the process of implementation	
Financial sources	Financies from the certification centers	
Expert staff, human resources, necessary knowledge and expertise	The activity will be performed by participation of national experts. The Universities are to have important role in issuing certificates, while the ICT business community is to have important role in training the citizens.	
Development environment:	Definition of all laws which will regulate the accreditation process for the certification centers, and the conditions under which they will be able to issue certificates	
Technologies:	The level of ICT in the certification centers must be at acceptable level for conducting the appropriate certification. The centers should have equipment with needed hardware and licensed software	
Deadlines:	This project should start as soon as possible. The first step should be forming of the accreditation center after which announcement for becoming certified center should be published.	
Monitoring of the realisation:	The agency for information technology or the accreditation center will monitor and coordinate the process for certification.	
Risks:	Insufficient cooperation between state institutions concerning the formation of a accreditation center which will be responsible to accredited certification centers	

Type of activity:	**Project - PR4.12**	
Title of the activity:	Redefinition of the curricula for ICT formal education.	
Area:	E-education (O7, O8)	
Responsible authority	Ministry of Education and Science	
Participants:	• Information Society Agency; • Universities; • High schools; • Elementary schools.	
Activity description	Content and structure redefinition of the existing curricula and subjects, and introduction of ICT education at all levels of the educational process (elementary school, high school and higher education), as well as in those fields where the ICT is not a research area.	
Expected outcome	Increase of the ICT skills for those that will pass through the formal educational system.	
Components:	1. Status analysis	An analysis of the existing plans in the educational institutions.
	2. Need analysis	Definition of the objectives that are to be achieved at different levels of the educational process, as well as definition of the necessary contents that is to be introduced.
	3. Creation	Creation and development of new curricula for all the levels of the educational process.
Period of implementation:	9 months	
Financial projection:	70.000 Euro	
	Critical factors in the process of implementation	
Financial sources:	- the Budget of the RM; - Foreign donations; - EU projects.	
Expert staff, human resources, necessary knowledge and expertise	The university ICT experts will actively participate in the performance of the project.	
Development environment:	Promotion through accreditation institutions and involvement of experts from the specific areas in the new content definition	
Technologies:	Web portals describing new curricula with details about the content of every course	
Deadlines:	New curricula and the implementation of the European standards should be finished until the next academic year 2006/2007	
Monitoring of the realisation:	Ministry of education and science and the commissions for accreditation of the new curricula.	
Risks:	The inability of the higher educational institutions to accept fast and often changes	

Type of activity:	**Project - PR4.13**	
Title of the activity:	Virtual digital libraries.	
Area:	E-education (O15, O16)	
Responsible authority	Ministry of Culture	
Participants:	• Information Society Agency; • Ministry of Education and Science; • National University Library; • Larger libraries in the country; • Private ICT companies.	
Activity description	Digitalisation and accessibility to the librarian material in the local languages and in the European Union languages.	
Expected outcome	Easier and quicker access to the contents. Improvement of the quality of the scientific and educational activities.	
Components:	1. Analysis	An analysis on the quantity of the information that are to be digitalised, as well as defining the functionalities of the technical solution.
	2. Creation of a solution	Creation of a technical solution for the use of digital libraries.
	3. Implementation	Implementation and testing of the solution and digitalisation of the existing contents of the libraries.
Period of implementation:	One year for technical solution. Continuous process of adding new contents.	
Financial projection:	300.000 Euros for equipment in the libraries 80.000 Euros a year for digitization	
	Critical factors in the process of implementation	
Financial sources:	The Budget of the RM. (Science Development Fund)	
Expert staff, human resources, necessary knowledge and expertise	The activity will be performed by national experts with the participation of private ICT companies in the creation of technical solution.	
Development environment:	The use of the academic network in providing fast and cheap access to information	
Technologies:	Web environment for easier accessibility to information.	
Deadlines:	The project should start as soon as possible. Current conditions should be analyzed and a project for further activities should be made.	
Risks:	Insufficient ICT equipment in the libraries as well as insufficient ICT education of the employees in the libraries and of those which will use the services	

Type of activity:	**Project - PR4.14**
Title of the activity:	Promoting the development of ICT literature in the Macedonian language and in the languages in the use of the educational system.
Area:	E-education (O12, O13, O15)
Responsible authority	Ministry of Education and Science
Participants:	• Publishing houses; • Literature authors; • Universities
Activity description	The existence of ICT literature in the Macedonian language will

	contribute to its greater use by all the citizens because of the increased and easier possibility of access to information for its use.
Expected outcome	- Increase in the use of the ICT; - Increase of the ICT literacy.
Period of implementation:	Continuous process
Financial projection:	50.000-100.000 Euros a year
	Critical factors in the process of implementation
Financial sources:	- Ministry of education and science - Finances from selling the literature - Foreign donations for development of professional literature on local languages
Expert staff, human resources, necessary knowledge and expertise	The project can rely on existing human resources which exist in the higher education system. Stimulation is a main factor for motivating the authors to produce literature
Deadlines:	The project should start as soon as possible with clear strategy what should be achieved, and with clear plan of activities which will be taken in order to increase the use and existence of ICT literature on local languages
Monitoring of the realisation:	The realization can be monitored by a body which will be formed for the project realization and that body will be responsible for monitoring the effects of the project and according to them will plan the next activities.
Risks:	Insufficient stimulation of the authors which can make them not interested in the project

Type of activity:	**Project - PR4.15**
Title of the activity:	Electronic application for enrollment at the faculty or for obtaining a scholarship, accommodation in a student centre.
Area:	E-education (O4)
Reference	E-citizens, e-Government
Responsible authority	Ministry of Education and Science
Participants:	• Universities; • High schools.
Activity description	The creation of a single information system for all educational institutions will open a possibility of offering e-services to the citizens. A part of these services can be the competitions for awarding a scholarship or applications for student dormitories announced by the Ministry of Education and Science. This kind of services will communicate with the information system and may provide instant information for the results of the competitions.
Expected outcome	- Transparency in the work of the institutions of the Government; - Increase use of the ICT.
Preconditions	Existence of clear plan for project implementation which will be accepted by all subject in the education
Period of implementation:	6 months to1 year
Financial projection:	40 000 Euros 3000-5000 Euros yearly for maintenance

	Critical factors in the process of implementation
Financial sources:	- Ministry for education and science - Foreign donations
Expert staff, human resources, necessary knowledge and expertise	The project realization can rely on existing human resources for development of the project plan, as well as for the realization and maintenance part.
Technologies:	Web server for hosting the project and web technologies for its realization
Deadlines:	The realization should start as soon as possible. 1 year is estimated for its development and implementation.
Monitoring of the realisation:	Existing commissions, or a central body formed for project realist ion will monitor its realization and will evaluate the results from its implementation
Risks:	Insufficient will from all institutions to accept involvement and support for the project, as well as insufficient existence of ICT equipment in these institutions and on citizens side

Type of activity:	**Project - PR4.16**	
Title of the activity:	Macedonian ICT monolingual dictionary with explanations	
Area:	E-education (O13, O15)	
Responsible authority	Metamorphosis Foundation	
Participants:	• Metamorphosis Foundation; • MANU; • Institute for Macedonian Language "Krste Petkov Misrkov"; • Information Society Agency; • Ministry of Education and Science; • adequate educational institutions (Faculty of Philology, ETF-CTIA, FMNS-II, MARNET); • The media and the publishers (specialised and general); • Associations and companies (MASIT, Microsoft); • Specialised civil organisations (Free Software - Macedonia); • Individual experts (translators, lectors, ICT professionals, journalists); • Interested citizens.	
Activity description	Establishing a platform for public debate with broad professional participation in the standardization of the ICT notions finally resulting in a monolingual Macedonian dictionary with explanations thus surpassing the situation of confusion in the language that is a cause for aggravation of the implementation and development.	
Expected outcome	Unification in the use of specialised ICT notions in the written and oral expression.	
Components:	Component 1	Establishment of an initial working group composed of representatives of the key participants (coordinative body) and specification of the working standards.
	Component 2	Creation of a collaborative working software (open forum with a possibility of voting for the proposed solutions).

	Component 3	Collection/digitalisation of the available results of all similar projects and their inclusion as proposals / starting bases.
	Component 4	Inclusion of the professional and general public through their direct participation in the process of proposing, evaluating, acceptation and application of the solutions.
Preconditions:	Existence of clear plan for implementation of the project which will be accepted by the most of the interested subjects	
Period of implementation:	Maximum of 1 year for setting the infrastructure. The Web application will stay active in the future and will serve as public resource for all which will be interested	
Financial projection	5,000 Euros	
	Critical factors in the process of implementation	
Financial sources	- Metamorphosis Foundation; - Other donations.	
Expert staff, human resources, necessary knowledge and expertise	Realization of the project can rely of human resources which exist in the country in the development of the project plan, as well as in the development, implementation and maintenance part	
Development environment:	System which can offer transparency and implementation of open standards.	
Technologies:	Web-server for hosting the project. Web-application (database and web-site) with functionality for exporting the data in different formats.	
Deadlines:	Realization of the project already started in May 2005 with initial contacts and meetings. The forming of the working group and the development of the first version should be made in June 2005, after which the database will be filled with data and that data will be evaluated using public forums.	
Monitoring of the realisation:	The working group will develop clear and transparent system of values for monitoring in phases and will evaluate the results, including the public in its work.	
Risks:	Insufficient will from the institutions to support the project on institutional level, by providing the experts and giving the available materials which they have for research.	

Type of activity:	**Project - PR4.17**
Title of the activity:	Centres for ICT Technology Transfer
Area:	E-education (O5, O11)
Responsible authority	Information Society Agency
Participants:	• Universities; • Private businesses (MASIT).
Activity description	Connection of the educational institutions with the business companies for implementation of innovative solutions. Support and assistance in the creation of new companies based on sustainable idea.

Expected outcome	- Decrease of the unemployment; - Development of the use of ICT by establishment and support of incubation companies.
Period of implementation:	1-2 years
Financial projection:	2.000.000 Euros starting investition
	Critical factors in the process of implementation
Financial sources:	- Foreign donations - Local municipalities in which the project will be activated - Private initiatives
Expert staff, human resources, necessary knowledge and expertise	Needed human resources exists, eventually consultants with experience or training in the area may help in project realization.
Deadlines:	The project should start as soon as possible. The initial realization period is 3-5 years.
Monitoring of the realisation:	Coordination body will monitor the project realization. That body can be also a commercial company which can be formed merging the universities and the private companies, and will be responsible for realization of the project and monitoring of its results.
Risks:	Low level of coordination between private companies and higher education institutions because of the inability of these institutions for fast and simple reorganization and adaptation to different conditions.

Type of activity:	**Project - PR4.18**
Title of the activity:	Electronic application for enrollment in high school and elementary school.
Area:	E-education (O4)
Reference	E-citizens, e-Government
Responsible authority	Ministry of Education and Science
Participants:	• Universities; • High schools; • Elementary schools.
Activity description	The creation of a single information system for all educational institutions will open a possibility of offering e-services to the citizens. A part of these services can be the competitions for enrollment in high schools and elementary schools announced by the Ministry of Education and Science. This kind of services will communicate with the information system and may provide instant information for the results of the competitions.
Expected outcome	- Transparency in the work of the institutions of the Government; - Increased use of the ICT.
Preconditions	Existence of ICT infrastructure for development and maintenance of the project
Period of implementation:	1-2 years
Financial projection:	40 000 euros 3000 - 5000 euros year maintenance
	Critical factors in the process of implementation
Financial sources:	- Ministry of education and science - Foreign donations - Finances from those which will use the system

Expert staff, human resources, necessary knowledge and expertise	Human resource for realization of the project exists in the area of project plan development as well as in the area of the solution development, implementation and maintenance.
Technologies:	Web technologies for development of the project and Web servers for hosting the solution.
Deadlines:	The project can start as soon as possible. The estimated period for its development is 1 year.
Monitoring of the realisation:	Appropriate body formed for the project should monitor its realization as well as project realization.
Risks:	Insufficient existence of ICT equipment in the education and the citizens, and insufficient ICT literacy.

4.5 E-HEALTH

Type of activity:	**Project - PR5.01**	
Title of the activity	Creation of IS Development Strategy in the health care sector	
Area	E- Health O5.01 - O5.08	
Responsible Authority	Ministry of Health	
Participants	Health Insurance Fund Clinical Centre in Skopje	
Activity Description	Implementation of the Strategy for integral information system, through creation and linking of sub-systems of several Clinics and Centre, developed on the basis of a unified model.	
Expected Outcomes	Improvement of the operation and securing of quality data on the location where the biggest number of medical interventions in the Republic of Macedonia are carried out.	
Components	1. Creation of a unified development model	Creation of a universal solution which shall meet the needs of all Clinics in a Centre.
	2. Pilot installation	Testing of the solution on a selected Clinic with the biggest number of performed medical interventions of different kind.
	3. Installation of a common network	Establishing of a unique network infrastructure at the level of the Clinical Centre with the links towards external subjects.
	4. Implementation of the solution	Introduction of the solution in all clinics of the Centre.
Preconditions	Detailed analysis and assessment of the current state of affairs of the ICT resources at the Clinical Centre and securing of a minimum needed personnel.	
Period of Implementation	Two years	
Financial projection	US$ 10.000.000	
	Critical factors for implementation	
Financial sources	The Budget of the Republic of Macedonia, donor programmes for establishment and local budgets for maintenance and upgrading.	
Expert staff, human resources, necessary knowledge and expertise	The existing expert personnel for creation of such solution is critically insufficient, especially those for the maintenance of the systems after the completion of the implementation.	
Development environment	Co-ordinated requirements of the project in compliance with the needs of all Clinics, for the purpose of building of a unified development model.	
Technologies	Crucial resources are needed for creation of a project solution, for development of a unified software solution, for hardware and network infrastructure.	
Deadlines	The project should be realised immediately after setting of the unique system for encoding and installation of the databases in the health sector, simultaneously with the project for application of the Unique Health Care Card	

Monitoring of the Realisation	Monitoring of generated medical and financial data and periodic assessment of the satisfaction of patients and of medical personnel on the basis of conducted surveys and questionnaires.
Risks	High costs for establishment and especially for maintenance of such a system and the lack of ICT personnel.

Type of activity:	**Creation of a Study and Project - PR5.02**	
Title of the Activity	Introduction of a unique encoding system	
Area	E-Health O5.02, O5.03, O5.06, O5.08	
Responsible Authority	Ministry of Health and Health Insurance Fund	
Participants	• Republic Institute for Health Protection (beneficiary) • Bureau for Medicines (beneficiary) • Medical Chamber (beneficiary) • State Statistical Office • Consultants (creators of the study) • Software company (the party responsible for project implementation)	
Activity Description	Creation of a study for definition of the manner and the rules for encoding of data used by two or more entities in the health sector: diseases, medicines, medical aids, doctors, health care institutions, etc., bearing in mind the existing registries and identifiers. The follow-up activity to the study should be the establishment of data structures among the subjects that generate such data.	
Expected Outcomes	Established criteria for harmonisation of databases and definition of electronic exchange of data electronically in order to enable an increased degree of integration and controlled exchange of data.	
Components	1. Current state of affairs and EU recommendations	Setting of the existing legislation, data structures and identifiers, as well as establishing of the EU directives and the recommendations for this field.
	2. Definition of the system	Definition of the form and structure of all necessary registries and records in the health sector, with special focus on unique identifiers.
	3. Systemic solution	Implementation of the relation/reference databases for the defined data structures.
	4. Migration of existing data	Transfer of the existing data to the new technological platforms.
	5. Publishing of data	Enabling usage of data by the interested subjects through direct exchange or by publishing on web-site in compliance with the data protection legislation.
Preconditions	Composing of an expert team with representatives from all subjects that generate data in the health sector.	
Period of Implementation	18 months	
Financial Projection	US$ 500.000	
Critical factors for implementation		

Financial sources	Foreseen funds within the World Bank Loan for the Project for Health Sector Management for establishment and local budgets for maintenance and upgrading.
Expert staff, human resources, necessary knowledge and expertise	The creation of the study shall be conducted with the existing staff of the responsible authorities and the stakeholders of the activity, combined with participation of a renowned consultations expert in the course of preparation of the study and the software company for installation of the databases
Development Environment	Legislation proscribing standards and fashion of exchange and usage of data, for the purpose of securing compliance and protection of data and development of individual ICT solutions for their own needs, with modules for exchange of data in accordance with the defined protocols.
Technologies	A crucial investment is needed for engagement of an expert for the consulting services, for hardware, for development of adequate solutions based on the relation/reference databases and for web-services for publishing of data.
Deadlines	For the purpose of reduction of the scope of the migration of the existing data, the study should be produced as soon as possible, and the establishment of data structures should be carried out before the beginning of the application of the electronic health card
Monitoring of the Realisation	Workshops organised for the purpose of receiving opinions and remarks on the study from the subjects in the health sector and analysis of data from the aspect of up-dating, physical and logical control.
Risks	Insufficient consideration of the existing data structures and identifiers, and securing of funds for maintenance of the data structures both, at the level of technological solution, and at the level of up-dating of data.

Type of activity:	**Project - PR5.03**	
Title of the activity	Introduction of Electronic Health Card	
Area	E-Health O5.01, O5.02 O5.04	
Reference	E-Government	
Responsible Authority	Ministry of Health and the Health Insurance Fund (MHIF)	
Participants	Health care service providers (beneficiary) Pharmacies (beneficiaries) ICT company (provider of the solution)	
Activity Description	Introduction of a document of identification of patient, doctors and diagnosis, for prescription of medicines and control of payment of health insurance taxes, electronically.	
Expected Outcomes	Increased quality and accuracy of data and significant reduction of the identification time while providing medical services, delivery of medicines and other medical aids.	
Components	1. Definition of the solution	Selection of the most suitable solution bearing in mind the conditions in the Republic of Macedonia as well as the EU guidelines, and definition of the contents of data and ways of exchange of data.
	2. Pilot installation	Testing of the solution at a given location (smaller municipality)

	3. implementation of the solution	Introduction of the solution on the entire territory of the Republic of Macedonia
Preconditions	Bringing into conformity with the other initiatives and projects implemented in the Republic of Macedonia which foresee electronic identification (identity cards, bank cards and etc.)	
Period of Implementation	One year	
Financial projection	US$ 20.000.000	
	Critical factors for implementation	
Financial sources	Local budgets and donor programmes	
Expert staff, human resources, necessary knowledge and expertise	The available human resources for realisation of this activity are insufficient and reaching a critical level, and especially in view to the big number of foreseen participants in the activity	
Development environment	The legislation, infrastructure at the level of a public network and establishing of an institution or a centre for further processing and conducting of data (processing/switching centre)	
Technologies	The necessary investment implies substantial scope of financial means needed for establishing of the system, including hardware, software solution, communications services and specialised equipment for creation, issuing and usage of electronic cards.	
Deadlines	Bringing into compliance with the deadlines of the EU directives on European Health Care Card	
Monitoring of the Realisation	Monitoring of the indicators in this sphere in accordance with the EU recommendations.	
Risks	High costs for establishment and, in particular, for maintenance of such a system.	

Type of activity:	**Project - PR5.04**	
Title of the activity	Hospital Information System in the major Health Care Institutions	
Area	E-Health, O5.01, O5.03, O5.05 - O5.08	
Responsible Authority	Ministry of Health	
Participants	Special hospitals (beneficiaries) ICT company (provider of the solution) Health Insurance Fund (MHIF)	
Activity Description	Creation of an information package with minimum parameters for the special hospitals, through development of a common access to the technological platforms, for recording of the work in electronic form (electronic patient record)	
Expected Outcomes	Unique citizens' registry data and medical data of the patients, statistical medical data and financial data regarding the operation of the hospitals as a way of monitoring of the fulfilment of the responsibilities foreseen in the contract with MHIF	
Components	1. Definition and creation of the solution	Creation of a universal solution which shall meet the needs of all hospitals, irrespective of their specialisation
	2. Pilot installations	Testing of the solution on three locations (hospitals of various type and scope of work)

	3. Implementation of the solution	Introduction of the solution in all special hospitals in the Republic of Macedonia
Preconditions	Detailed analysis and assessment of the current state of affairs and of the existing ICT resources in the special hospitals.	
Period of Implementation	Two years	
Financial projection	US$ 1.500.000	
	Critical factors for implementation	
Financial sources	Foreseen funds within the World Bank Loan for Project for Health Sector Management for establishment and local budgets for maintenance and upgrading.	
Expert staff, human resources, necessary knowledge and expertise	The existing expert personnel for creation of such solution is sufficient, however, the maintenance of such system implies significant increase of ICT staff in the hospitals.	
Development environment	Co-ordinated requirements of the project in compliance with the needs of all special hospitals and in compliance of the assumed needs of the future beneficiaries.	
Technologies	Crucial investments are needed for the hardware and for development of a unified software solution.	
Deadlines	Deadlines should be in compliance with the existing transformation of the system of financing in the public health.	
Monitoring of the Realisation	Monitoring of the generated medical and financial data.	
Risks	Adjustment of the solution to the on-going transformation of the system of financing in the public health.	

Type of activity:	**Project - PR5.05**	
Title of the activity	Electronic appointments, electronic informing and notification of the patients - citizens	
Area	E-Health, O5.01, O5.08	
Responsible Authority	Ministry of Health	
Participants	ICT company (provider of the solution)	
Activity Description	Upgrading of the existing web-site to the level of a true web-portal that would enable full interaction with the users of the portal (citizens, companies and institutions)	
Expected Outcomes	Improvement of the process of realisation of the rights the citizens deriving from health insurance, of the performance of the obligations of the employers and transparency in the work of the MHIF through publishing of needed information.	
Components	1. Two-way communication	Enabling, delivery of information from the users towards the web-site of the MHIF.
	2. Electronic signature	Establishing a authentication of identity and confirmation for data submission
Preconditions	Completion of the legislation for electronic signature and establishing of adequate body for issuing and certification of electronic keys.	
Period of Implementation	One year	
Financial projection	US$ 100.000	
	Critical factors for implementation	
Financial sources	Foreseen funds from the World Bank Loan for the Project for Health Sector Management for establishment and local budget for maintenance.	

Expert staff, human resources, necessary knowledge and expertise	Engagement of an ICT company for specific phases, but also training on web-design and web-programming of at least two persons from the MHIF's IT Sector for the purpose of ensuring continuous development.
Development environment	Promotion of the web-possibilities for the citizens, companies and institutions.
Technologies	Investment for the initial setting up of the system and for up-dating of the offered contents.
Deadlines	Continued development.
Monitoring of the Realisation	Assessment of the satisfaction of the users through conducted surveys and questionnaires.
Risks	Mistrust and indifference in respect to the usage by the potential users

Type of activity:	**Project - PR5.06**	
Title of the activity	Information System in the other Health Care Institutions, including the private ones	
Area	E-Health, O5.01, O5.03, O5.05-O5.08	
Responsible Authority	Ministry of Health	
Participants	ICT company (provider of the solution) Health Insurance Fund	
Activity Description	Completion and upgrading of the existing information system in accordance with the on-going reform of the health care system, with adequate strengthening of the system resources.	
Expected Outcomes	Improvement of the processes of collection of the health insurance contributions/charges and payment of the services for the health care service providers.	
Components	1. Basic system	Upgrading of the system resources (processing capacity, number of work stations, network connections and additional programme modules), in accordance with the on-going needs
	2. Reports regarding the management	Implementation of a system for articulation of the data into useful information for the top management (management information system)
	3. Document management	Implementation of a system for a complete electronic keeping and recording of the documentation (document management system)
Preconditions	Precise assessment of the current solution, including the analysis of the weaknesses and shortcomings.	
Period of Implementation	Two years	
Financial projection	US$ 1.000.000	
	Critical factors for implementation	
Financial sources	Foreseen funds from the World Bank Loan for the Project for Health Sector Management for establishment and the local budget for maintenance.	
Expert staff, human resources, necessary knowledge and expertise	Current state of affairs in the IT sector of the MHIF implies the recommendable as well as necessary increase in numbers of the employees for realisation of this activity. For the creation of the additional programme modules and installation of the specialised sub-systems, it is necessary to engage ICT company as an external partner.	
Development environment	Definition of the solutions by the end users, instead by the ICT experts.	

Technologies	Investment in the hardware software equipping and especially in training of the end users.
Deadlines	Completion of the information system by bringing it in compliance with the on-going reform of the health system including the observation of the deadlines.
Monitoring of the Realisation	Assessment of the state affairs within the regular annual revision of the operation by an independent party.
Risks	Amendments and addition to the project requirements as a result of the on-going reform of the health care system.

Type of activity:	**Project - PR5.07**	
Title of the activity	Information Systems of the Primary Health Care Institutions, including the private ones	
Area	E- Health, O5.01, O5.03, O5.05 - O5.08	
Responsible Authority	Ministry of Health	
Participants	• Health Insurance Fund • Surgeries (beneficiaries) • ICT company (provider of the solution)	
Activity Description	Creation of an information package for the surgeries through creation of a common access to the technological platforms, for recording of the work in electronic form (electronic patient record).	
Expected Outcomes	Unique citizens' registry data and medical data of the patient, statistical medical data, and financial data for the operation of the surgeries.	
Components	1. Definition and creation of the solution	Creation of a standard solution
	2. Pilot installation	Testing of the solution in 5 locations (surgeries with various scope of work)
	3. Implementation of the solution	Introduction of the solution in all of the surgeries in the Republic of Macedonia
Preconditions	Detailed analysis and assessment of current situation and the existing ICT resources in the surgeries.	
Period of Implementation	Two years	
Financial projection	US$ 5.000.000	
	Critical factors for implementation	
Financial sources	Budget of the Republic of Macedonia, donor programmes for establishment and local budgets for maintenance and upgrading.	
Expert staff, human resources, necessary knowledge and expertise	The existing expert personnel is sufficient for the implementation of such a solution, however not sufficient for maintenance of the systems following the completion of the implementation.	
Development environment	Coordinated requirements of the project for the purpose of meeting the needs of the surgeries with various scope of work.	
Technologies	Crucial investments are necessary for supply of hardware equipment and development of the unified software solution.	
Deadlines	The deadlines should be in compliance with the current transformation of the system of financing of the public health.	
Monitoring of the Realisation	Monitoring of generated medical and financial data and periodical assessment of the satisfaction of patients and of medical personnel on the basis of conducted surveys and questionnaires.	

Risks	Great number of surgeries in physically isolated locations and exceptionally severe current condition in respect to existing hardware and software resources.

Type of activity:	**Project - PR5.08**	
Title of the activity	E-Pharmacies O5.04	
Area	E-Health	
Responsible Authority	Pharmacies	
Activity Description	Introduction of a web-portal with possibilities for information in respect to the availability, ordering and reserving of a specific medicine.	
Expected Outcomes	Increase of accessibility and improvement of the process of distribution of medicines and medical aids.	
Components	1. Common web-portal	Establishing of a common web-portal with access to all interested pharmacies
	2. Two-way communication	Enabling of a two-way communication between the web-portal and the citizens
Preconditions	Completed information systems in all interested pharmacies	
Period of Implementation	6 months	
Financial projection	US$ 50.000	
	Critical factors for implementation	
Financial sources	Own funds from the pharmacies and from donor programmes.	
Expert staff, human resources, necessary knowledge and expertise	Engagement of an ICT company for development of the solution in co-operation with a working team composed of experts from the major pharmacies.	
Development environment	Promotion of the web-possibilities for the citizens.	
Technologies	Investment for an initial set-up of the system and for upgrading of the offered contents.	
Deadlines	Continued development	
Monitoring of the Realisation	Assessment of the satisfaction of the citizens through surveys and questionnaires	
Risks	Competitive position of the pharmacies on the medicine and medical aids market.	

4.6 E-CITIZENS

Type of activity:	**Program - PG6.01 Priority 1**	
Title of the activity:	E-civil participation	
Area:	E-citizens - Support to the local communities in the creation of locally sustainable ICT policy - O 6.01, O 6.02, OC 6.03, O 6.04, O 6.05	
Reference	E-Government (offer of e-services / civil portal / interoperability - interconnections)	
Responsible authority	MDW / USAID and the Methamorphosis Foundation[18]	
Participants:	• Ministry of Local Self-Government; • NGO sector and donations (expertise and management) / implementation (e -points); • CSGU (Community of the Self-Government Units) / LSGU (local partner / implementer); • AIO (coordinator of the local and other services); • UNDP, MDW / USAID, FIOOM (existing infrastructure on the e-points); • The Government of the RM; • The business sector (own resources); • Local municipalities, schools (own resources); • Providers.	
Activity description	Placing the ICT on the political agenda of the local self-Government and providing disposable public services of benefit to the citizens delivered according to the subsidiary principle and good governance. Increase of the number of e-services users by educating the users and opening of publicly accessible e-points.	
Components:	1. Local - service policies from the point of view of the citizens	Support to the process of creation of ICT policies for LSGU that will prescribe the commitments, obligations and tools for offering quality and sustainable e-services to the citizens. Support to the introduction of the ICT policies in other LSGU development strategies. The policy and the e-consultants (see item 2) together with the local leaders will take care to add the ICT component in all the aspects of functioning of the local self-Government taking into account NSIS&AP. Supporting the implementation of the local strategies.
	2. E-consultants	Process of engagement of e-consultants (national experts operating in micro regions)[19], who after the specialised training will offer free services on the transfer of knowledge of the employess in the local self-Government for those that will decide to participate in this development programme and will accordingly participate in the creation of the local ICT policy. The e-consultants will work on the basis of the international

[18] The project is approved and initial budget for realisation is provided by the responsible authorities.
[19] The term micro regions in this draft programme covers several municipalities that naturally gravitate in one region and are interdependent with infrastructure and human resources and usually they are comprised of one city and several rural environments that will share the resources from one point. This is a technical issue and the division of the regions will be based on the operative solutions and the needs of the implementers of the project in the interest of more efficient functioning of the project. Each micro region will be covered by one consultant that will in principle be a local expert.

		known model e-Rider and will be engaged on the project as outsource independent consultants of the local self-Government.
	2. Infrastructure	Participation of the local self-Government, the business sector and other partners in the provision of the necessary infrastructure.
	3. E-points	Evaluation of the infrastructure, human resources and possible partners (see: participants) in every municipality. Classification of several categories in e-points - public-private partnership - (within the state and local institutions, schools, universities, libraries. Internet clubs, business and NGO - sector, centres for NGO support (FIOOM), digital clubs, Metamorphosis Foundation), ICT centres in the LSGU (UNDP, MDW/USAID), centres for supplementary education (Babylon centres - Youth and Sports Agency), lifetime education centres (Workers University), wireless "hot-spots" on public places, catering facilities, buildings, transport centres, municipality wireless networks). Some of the centres will be equipped for promotion with equipment for people with special needs (pilot project).
	4. E-civil education	Continuous trainings with covering a wide scope of the population and improvement of the ICT knowledge e-civil education[20] using the local infrastructure (e-points, national experts).
	5. ICT pilot projects of the local communities.	Support to the innovation and progress inititatives adding value to the offer of e-services to the citizens.
	6. Interaction and interoperability	Interoperability[21], standardisation and unification on a service level among the institutions and accompanying Guidelines defining the obligations and time frames in their mutual communication on an institutional level.
Preconditions	Local elections and new local Government (in the first half of 2005).	
Period of implementation:	2,5 years (from the middle of 2005 until the end of 2007)	
Financial projection:	1.200.000 Euro (66% of the budget is provided by the responsible authorities)	
	Critical factors in the process of implementation	
Financial sources:	Donors and NGOs (software, equipment, expertise), local elections (workforce, training, infrastructure).	
Expert staff, human resources, necessary knowledge and expertise	Employees in the local self-Government (computer centres, information centres, local communities), e-consultants, outsource local companies and experts.	
Development environment:	Implementers support the process, NGOR, the local business, AIO in cooperation with the Government and the local partners.	

[20] The term e-civil education is used in correlation with the term civil education in the transition into knowledge-based society.
[21] Horizontal - at the same level, vertical - between different levels of the hierarchy.

Technologies:	Computer equipment, software, network equipment, Internet.
Deadlines:	From the middle of 2005 until the end of 2007.
Monitoring of the realisation:	Indicators: a number of PIAP- terminals (terminals in e-points) of 1.000.000 citizens; a number of Internet users per 1000 citizens; integration of the local ICT policy in the strategic documents of the local self-Government as a basis for building the e-services; a number of publicly disposable services; percentage of institutions offering essential electronic communication in both directions; a number of municipalities having ICT policies; a number of municipalities having CIO (main information coordinator - an expert in the local self-Government that is responsible for implementation of the ICT policies); a number of employees in the ICT sector in the municipalities; a number of computers per employee in the SGU; a number of municipalities actively using the advanced technologies for internal communication as well as advanced technologies regarding the citizens; a number of citizens using the new technologies in the communication with the responsible institutions; digital divide-index
Risks:	Lack of local support and political will in certain municipalities.

Type of activity:	**Project - PR6.01**	
Title of the activity:	E-citizen portal (citizens.mk)	
Area:	E-citizens / standards for e-services (O 6.02, O 6.03, O 6.04)	
Reference	E-Government	
Responsible authority	The Government of the Republic of Macedonia / the General Secretariat	
Participants:	The Government of the Republic of Macedonia and the public institutions, AIO, LSGU.	
Activity description	A possibility of the citizens to access from one point (by references and functionally) to all the data, services, information and forms that are of their interest.	
Components:	1. The first and the second phase - informative / elementary interaction	In the first implemtnation phase the civil portal will provide a possibility to download application forms, make an appointment, institutional maps for certain requaests, guidelines and lists of necessary documents on one spot with universal presentation layout. At the same, a publicly accessible address book of all the institutions and responsible individuals in all the segments of the administration will be placed on the civil portal. There will also be placed an easily manageable support system to the users. An element of this portal will also be forms that safely and anonymously will make a public opinion and recommendation poll on the functioning of all the state organs, as well as files of complaints and corruption of those organs. Then this information will be distributed to the responsible institutions in that area, as well as to the superior responsible institutions in for their supervision. As a part that is to be developed in order to give impetus to the civil initiative is the civil forum ("e-democracy") that is public and at a disposal for all. This tool will be used in order to improve the services

		offered to the citizens and for receiving feedback and initiatives of civil nature. In the second phase, the portal will cover services (at all levels) for registering and paying taxes, searching for vacancies, applications for social beneficiaries, applications for personal documentation, registration of vehicles, construction permits, police calls, inspectorates, public libraries, applications and communications with public educational institutions, change of address of living, health services and alike.
	2. The third phase - e-one stop shop system	The third phase (mid-term) comes after the introduction of legal and organisational reforms for implementation of one stop shop system, the civil portals will offer one stop shop system for the citizens. Following the introduction of one stop shop system and PKI[22] through the e-civil portal the citizens can access the resources in a universal manner and quickly from their homes or public places and make all the necessary financial transactions and transactions of documents.
Preconditions	The first / the second phase does not exist; the third phase - introduction of PKI, e-banking and one stop shop (with all the accompanying acts).	
Period of implementation:	2006-2007 year (the first 2 phases)	
Financial projection:	100.000 Euro	
	Critical factors in the process of implementation	
Financial sources:	Donations / own means	
Expert staff, human resources, necessary knowledge and expertise	Governmental ICT experts, manufacturing companies	
Development environment:	For later components: one stop shop system. Currently: Law on Free Access to Public Information and Guidelines on the Quality of the Services.	
Technologies:	Software / services / standards	
Deadlines:	The first phase: the beginning of 2006. The second phase: the second half of 2007.	
Monitoring of the realisation:	Indicators: a number of portal users; a number of citizens per 1000 citizens that electronically performed at least a part of the procedures.	
Risks:	Postponing the implementation of the introduction of one stop shop system.	

Type of activity:	**Project - PR6.02**
Title of the activity:	Civil initiatives for information society (Overcoming the digital divide initiative)
Area:	E-citizens / overcoming the digital gap (O6.05)
Reference	None direct references
Responsible authority	AIO

[22] Public Key Infrastructure

Participants:	• NGO sector, foundations and donations; • The Government of the RM, the local self-Government, the business sector.	
Activity description	The civil associations knowing the needs of the citizens in the best possible way, by using the micro-projects will fast and efficiently educate the citizens about the possibilities and ways of access to the e-services that are of interest to a certain target group (for example, citizens with special needs). They will also have a possibility of offering some specific tools for that target group.	
Components:	1. The first phase	Defining the priority target groups and regions in order to surpass the differences from the digital gap.
	2. The second phase - a series of grants	The organisations through the projects will perform e-civil education for certain target groups and /or will offer solutions for specific tools. It is also possible to have campaign projects, as well as projects for free distribution of literature and software.
	3. Parallel component	NGO body for monitoring the performances of the e-services offered by the Government in each step of their implemtnation and preparation of monthly reports with recommendations for improvement of the services. Public and indepenedent offline and on-line tools for evaluation of the services by the citizens.
Preconditions	Acquired funds, institutional strengthening of the agency for grant making process, analysis prior to the grant programme	
Period of implementation:	3 years	
Financial projection:	100.000 Euro	
	Critical factors in the process of implementation	
Financial sources:	Foundations	
Expert staff, human resources, necessary knowledge and expertise	NGO resources	
Development environment:	Law on Associations of Citizens and Foundations, Law on Information Society, local policy on information society.	
Technologies:	None special from the side of AIS, technology will be implemented in the projects from the NGO site	
Deadlines:	The first phase: summer / autumn 2005. The second phase: by the end of the timeframe of the Action Plan.	
Preconditions	Indicators - Digital divide Index	
Period of implementation:	Not quality implementation of a part of the projects.	

Type of activity:	**Project - PR6.03**
Title of the activity:	Measures for support to the local contents.
Area:	E-citizens / O6.06
Reference	E-business
Responsible authority	AIO
Participants:	The Government of the RM; PE; LSGU; the business and the NGO sector.
Expected outcome	Certain benefits for the companies producing quality, proofreading, free of charge and disposable on-line material.

Components:	1. Private initiative	Assessment of the possibilities of certain subventions and modus (taxes or public competitions, as well as the Broadcasting Council). Implementation, sustainability in awarding grants.
	2. Public ownership	Creation of an online library for materials in public ownership - accessible and free for all the users (archives, projects supported by the Broadcasting Council, AB materials and alike).
Preconditions	Regulations and licencing system for public access to content	
Period of implementation:	2006-2007 year	
Financial projection:	25 000 Euro	
	Critical factors in the process of implementation	
Financial sources:	Donors	
Expert staff, human resources, necessary knowledge and expertise	Companies (portals, contents writers)	
Development environment:	Available typical licences available to content providers	
Technologies:	Digital rights management	
Deadlines:	One year.	
Preconditions	Indicators: quantity of a local on-line material.	
Risks:	Lack of interest from content owners	

Type of activity:	**Program - PG6.02**	
Title of the activity:	E-security	
Area:	E-citizens / C 6.02	
Reference	E-business, e-Government	
Responsible authority	AIO	
Participants:	The Government of the RM, LSGU, the business sector	
Expected outcome	Trust in the online systems for transmission of information and financial transactions.	
Components:	1. The first phase: standards and institutions	a) Establishment of a working group for e-security within the AIO that will monitor the information security; b) Preparations of changes in the regulation in the area of e-crime; c) Strengthening the e-crime department within the MI by knowledge and technology; setting technology for sharing information between different institutions for detecting 'interdisciplinary' schemes of the e-crime; d) Strengthening the fight against piracy (as one of the greatest risks for discrediting of information with viruses, spy software and similar), malicious hacker attacks in cooperation with the providers, misuse of credit cards etc.; e) Creation of a security framework that is to be implemented in each institution and which will contain good security practices (physical, network, software,

		policy on secrecy of information, responsibilities, strict rules for protection in keeping data from credit cards and alike).
	2. The second phase: monitoring	Continuous monitoring of the parameters.
Period of implementation:	The first phase: summer / autumn 2005. The second phase: winter 2005/2006 - by the end of the timeframe of the Action Plan.	
Financial projection:	50.000 Euro	
Critical factors in the process of implementation		
Financial sources:	Donations	
Expert staff, human resources, necessary knowledge and expertise	Education and employment of staff.	
Development environment:	Book of rules and legal acts on data security and privacy.	
Technologies:	Network security appliances, insurance of systems and software, physical insurance.	
Deadlines:	The first phase: summer / autumn 2005. The second phase: winter 2005/2006 - by the end of the timeframe of the Action Plan.	
Preconditions	Indicators: the level of e-crime in Macedonia; the level of information of the citizens on their rights and data security.	
Period of implementation:	Disobeying the standards for security and privacy therby diminishing the effect of this programme.	

Type of activity:	**Project - PR6.04**	
Title of the activity:	Environmental information system and adequate portal.	
Area:	E-citizens / O6.04	
Reference	E-Government, e-business, sustainable development.	
Responsible authority	Ministry of Environment and Physical Planning.	
Participants:	The Government of the RM, the NGO having the ecology as its main activity, PE (Water Economy, Utilities hygiene ...), Cadastre, inspectorates, media, LSGU, business sector.	
Expected outcome	Publicly accessible data, resources and ICT tools in connection with the monitoring and the transparency of the parameters on the quality of the environment in the whole local self-Government in the Republic of Macedonia.	
Components:	1. Environmental Information System	Creation of an information system that in interconnection with the information systems for spatial planning, cadastre and other GIS systems, metrological stations, inspection services, public enterprises will aggregate the data on the status of the parameters of the soil, air, water, agricultures etc. and will follow the trends that will be publicly available to all the interested parties.

	2. Informative portal	Creation of an informative portal that will represent a presentation level for the collected data through Internet having sub-sector specialised in the needs and interests of the public institutions, business sector, non-Governmental organisations and the citizens, and will at the same time, have educational nature with an appropriate resource centre alongside the informative nature.
Preconditions	Institutional strengthening of the Ministry of environment	
Period of implementation:	2006 - 2007 year	
Financial projection:	50.000 Euro	
	Critical factors in the process of implementation	
Financial sources:	Donors, the Ministry of Environment and Physical Planning	
Expert staff, human resources, necessary knowledge and expertise	Companies (portals, contents writers)	
Development environment:	Implementation of the National Strategy of Ministry of Environment	
Technologies:	Software	
Deadlines:	One year	
Preconditions	Indicators: percentage of publicly accessible data on the situation of the environemtn in the Republic of Mamcedonia.	
Period of implementation:	Not sufficiently fast implementation of the information systems in the other institutions.	

4.7 LEGISLATION

Type of activity:	**Program - PG7.01**
Title of the activity	Enactment of the Law on information society
Area	Legislation
Reference	PG07.01
Responsible Authority	Ministry of telecommunications
Participants	• MASIT • Agency for information society • Competent ministries • Donators
Activity Description	Team of domestic will make overview and analyses of the legislation in the region, comparative law, EU and legislation in Macedonia
Expected Outcomes	Enactment of law and its implementation
Components	1. Analyses 2. Comparison 3. Draft
Preconditions	Political will, active cooperation between all interested pàrties, financial resources
Period of Implementation	6 months
Financial projection	15.000 EUR
	Critical factors in the process of implementation
Financial sources	Donators, Governmental Budget
Expert staff, human resources, necessary knowledge and expertise	100 EUR per day, experts in the field of law and technology
Deadlines	June 2005-June 2006 (one year)
Monitoring of the Realisation	Domestic and foreign expert team 2 years after enactment of the law will monitor the implementation and will propose amendments if it is necessary
Risks	No political will, bad stability in the country

Type of activity:	**Program - PG7.02**
Title of the activity	Enactment of the Law on electronic commerce
Area	Legislation
Reference	PG07.02
Responsible Authority	Ministry of telecommunications
Participants:	• MASIT; • Agency for information society; • Competent ministries; • Donators.

Activity Description	Team of domestic will make overview and analyses of the legislation in the region, comparative law, EU and legislation in Macedonia
Expected Outcomes	Enactment of law and its implementation
Components:	1. Analyses 2. Comparison 3. Draft
Preconditions	Political will, active cooperation between all interested pàrties, financial resources
Period of Implementation	6 -12 months
Financial projection	20.000 EUR
	Critical factors in the process of implementation
Financial sources	Donators, Governmental Budget
Expert staff, human resources, necessary knowledge and expertise	100 EUR per day, experts in the field of law and technology
Deadlines	24 months
Monitoring of the Realisation	Domestic and foreign expert team 2 years after enactment of the law will monitor the implementation and will propose amendments if it is necessary
Risks	No political will, bad stability in the country

Type of activity:	**Program - PG7.03**
Title of the activity	Harmonization of laws and other regulations which are in connection or have effect on the functioning of information society
Area	Legislation
Reference	PG07.03
Responsible Authority	Ministry of justice
Participants	• MASIT • Agency for information society • Competent ministries • Donators
Activity Description	Team of domestic will make overview and analyses of the legislation in the region, comparative law, EU and legislation in Macedonia
Expected Outcomes	Report in which will be mentioned all the laws which have to be amended
Components	1. Analyses 2. Comparison 3. Draft
Preconditions	Political will, active cooperation between all interested aprties, financial resources
Period of Implementation	6 -12 months
Financial projection	60.000 EUR
	Critical factors in the process of implementation
Financial sources	Donators,

	Governmental Budget
Expert staff, human resources, necessary knowledge and expertise	100 EUR per day, experts in the field of law and technology
Deadlines	24 months
Monitoring of the Realisation	Domestic and foreign expert team 2 years after enactment of the laws will monitor the implementation and will propose amendments if it is necessary
Risks	No political will, bad stability in the country

Type of activity:	**Program - PG7.04**
Title of the activity	Training of the civil servants, judges, prosecutors, public attorneys, lawyers and employees in the health, educational, cultural, scientific institutions and other public services.
Area	Legislation
Reference	PG07.04
Responsible Authority	Ministry of justice
Participants	• MASIT • Agency for information society • Competent ministries • Donators
Activity Description	A team of national and foreign experts will carry out training of the civil servants, judges, prosecutors, public attorneys, lawyers and employees in the health, educational, cultural, scientific institutions and other public services
Expected Outcomes	Increasing the awareness on the use of information technology and the knowledge on the implementation of the legal and other regulation on information society
Components	1. Analyses 2. Design of the trainings 3. Education
Preconditions	Political will, active cooperation between all interested aprties, financial resources
Period of Implementation	24 months
Financial projection	100.000 EUR
	Critical factors in the process of implementation
Financial sources	Donators, Governmental Budget
Expert staff, human resources, necessary knowledge and expertise	100 EUR per day, experts in the field of law and technology
Deadlines	June 2006-June 2008 (two years)
Monitoring of the Realisation	Domestic and foreign expert team 2 years after enactment of the law will monitor the training
Risks	No political will, bad stability in the country

4.8 SUSTAINABILITY

Type of activity:	**Project - PR8.01**
Title of the activity	Establishment of the organisational structure and the capacities of the Information Society Agency.
Area	Priority areas for sustainability of the Strategy - item 3.
Reference	All the pillars.
Responsible Authority	The Government of the RM, the Information Society Agency.
Participants:	• Representatives of the Government of the RM; • Universities; • The private sector; • Non-Governmental organisations.
Activity Description	Creation of a feasibility study on the organisational structure and the capacities of the future Information Society Agency of the Republic of Macedonia.
Expected Outcomes	Defining the organizational structure and required capacities of the Information Society Agency
Preconditions	Forming of a expertise team with the representatives from most of the relevant subjects
Period of Implementation	October 2005
Financial projection	50.000 Euros
	Critical factors in the process of implementation
Risks	No sufficient consideration on the existing institutional structure

Type of activity:	**Project - PR8.02**
Title of the activity	Defining campaigns on building the public awareness about the information society.
Area	Priority areas for sustainability of the Strategy - item 4.
Reference	All the pillars.
Responsible Authority	The Government of the RM, the Information Society Agency.
Participants:	• Representatives of the Government of the RM; • Universities; • The private sector; • Non-Governmental organisations.
Activity Description	Creation of a complete campaign consisted of a sum of smaller campaigns that are to contribute to the building of the public awareness in the Republic of Macedonia about the significance of the information society for the general development of the country.
Preconditions	Forming of a expertise team with the representatives from most of the relevant subjects
Period of Implementation	18 months
Financial projection	50.000 Euro

Type of activity:	**Project - PR8.03**
Title of the activity	Establishment of a fund on information society development based on the principle of partnership between the public and the private sector.
Area	Priority areas for sustainability of the Strategy - item 5.
Reference	All the pillars.
Responsible Authority	The Government of the RM, the Information Society Agency.
Participants:	• Representatives of the Government of the RM; • Universities; • The private sector; • Non-Governmental organisations.
Activity Description	Establishment of a fund on information society development based on the principle of partnership between the public and the private sector.
Expected Outcomes	Found to be formed and to start with the financing of the separate projects
Preconditions	Involvement of all relevant parties in the process
Period of Implementation	End of 2005
Financial projection	50.000 Euro
	Critical factors in the process of implementation
Risks	No sufficient consideration of the existing representatives of the public and private sector.

Type of activity:	**Project - PR8.04**
Title of the activity	Establishment of indicators and methodology for evaluation of the information society development in the Republic of Macedonia.
Area	Priority areas for sustainability of the Strategy - item 6.
Reference	All the pillars.
Responsible Authority	The Government of the RM, the Information Society Agency.
Participants:	• Representatives of the Government of the RM; • Universities; • The private sector; • Non-Governmental organisations.
Activity Description	Creation of a study that will define the indicators and methodology for evaluation of the information society development in the Republic of Macedonia in the future.
Expected Outcomes	
Preconditions	Forming of a expertise team with the representatives from most of the relevant subjects
Period of Implementation	End of October 2005
Financial projection	50.000 Euro

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APPENDIX 1: MEMBERS OF THE WORKING GROUP (NATIONAL INFORMATION SOCIETY TASK FORCE)

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
1. Jani Makraduli	28.03.1965	MSc in Technical Sciencies	President of CIT, Member of Parliament of the Republic of Macedonia	The Strategy is an opportunity for generating positive solutions that shall enable: better, faster, more productive and high quality work of everybody. How shall we use it - depends on us!
e-mail	j.makraduli@sobranie.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
2. Sofche Jovanovska	13.09.1967	Electrotechnical Engineer	Member of the Commission for Information Technology, Director of the Directorate for Promotion and Member Information -Chamber of Commerce of Macedonia	… the outcome of the implementation of the Information Society Development Strategy should represent a confirmation for the strategic determinations of the Republic of Macedonia
e-mail	sofce@ic.mchamber.org.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
3. Vancho Uzunov	24.02.1964	PhD in Economics	Counsellor to the President of the Republic of Macedonia, Mr. Branko Crvenkovski, on European integration issues of the Republic of Macedonia, Assistant Professor at the Law Faculty, University "St. Cyril and Methodius" - Skopje	The access to internet today represents a part of the group of human rights, which in essence means that everyting possible should be done in order to make it accessible to anybody at equal, low-cost, yet economically sustainalbe parameters.
e-mail	v.uzunov@president.gov.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
4. Jovanche Petrov	15.10.1975	Electrotechnical engineer	Technical Manager of the MaNGO Online Project, Foundation Open Society Institute Macedonia (FOSIM)	The quality of the Strategy is greater compared to the experiences in Europe up to now, by focusing, above all, on the interests and the needs of the citizens, who are also the main reason for the creation of the whole infrastructure of electronic services, which are going to be universal, accessible and indepednet, irrespective of the technology of access.
e-mail	webdesk@mango.org.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
5. Filip Stojanovski	04.06.1974	Informatics engineer	Programme Coordinator, Metamorfozis Foundation	Conducting of the process with wide participation in the creation of the Strategy, not only it indicates to the fact that the needs for information development are common and universal, but also it indicates to the fact that it is possible to join forces from various ends of our society in order to achieve them together.
e-mail	flame@unet.com.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
6. Dragan Nikolic	23.01.1969	Electrotechnical engineer (computer technology, ifnormatics, automatics)	Ministry of Defense of the Republic of Macedonia, Head of the K-4 Sector (Command, Control, Communications, Computers)	In my view, this Strategy represents the first revolutionary document of this kind in the IT field in the Republic of Macedonia. The more important issue is that this document truly represents the realistically achievable steps in the development of the information society that the Republic of Macedonia should do in the coming period. This represents an enormous challenge and for that reason I am really looking forward to it.
e-mail	drgn@morm.gov.mk			

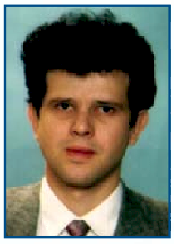
Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
7. Toni Petreski	03.09.1964	MA in Public Adminsitration	President of the SC of MASIT, Chief Excectuive Director - Inet AD	Domestic IT companies should be the main stakeholder of the implementation of the project determined in the Action Plan of the of the National ICT Strategy, given that they are the most knowledgable about the environment in which they can, in the fastest and most sucessful way, bring closer the information and communication technologies, both, to the private and to the public sector"
e-mail	toni@mkinter.net			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
8. Meri Kuchera Ilievska	10.07.1966	Economist	Member of the SC of MASIT, Marketing Manager of the EuroComputer Systems	This is not the first attemtp to create such a document, for sure it is not the best one, however, it is an excellent indicator of where we stand and what do we need to do in order to find ourselves at least a step closer to our e-goal. One step is, simply, not too much..
e-mail	meri@ecs.com.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
9. Ace Kocevski	07.06.1961	Construction Engineer	Mayor of Municipality of Veles	The National ICT Strategy provided us with an even greater desire to persist in the process of reaching the international experiences in the development of information systems, being aware that only in this manner our vissions for development can be faster transformed into reality. Inspired by it, the Municipality of Veles is already in the phase of creation of a Strategy for introduction of e-municipality as a part of the objective to offer the citizens modern, fast and cost-effective services at any time and from any place.
e-mail	acekocevski@yahoo.com acekocevski@mt.net.			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
10. Aksenti Grnarov	17.03.1948	PhD in Technical Sciences	Professor, Computer Technics and Informatics Institute, Electrotechnical Faculty, University "St. Ciryl and Methodius" - Skopje, Manger of the E-technology and computer networks center	The implementation of the Strategy is the biggest precondition for the development of ICT-industry in Macedonia, prevention of the brain-drain of the highly qualified personnel and the bright future of our children. The Strategy shall not be successful without an Agency or a Ministry for e-society.
e-mail	grnarov@mt.net.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
11. Danilo Gligoroski	08.06.1967	PhD in Informatics	Assistant Professor, Natural Sciences and Mathematcis Faculty, University "St. Cyril and Methodius" - Skopje	The Starategy was proposed by a working team in which wonderful synergy was created. I would be very happy if at least 25% of it is realised.
e-mail	gligoroski@yahoo.com			



Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
12. Marjan Gushev	28.06.1961	PhD in Electrotechnical Sciences, MSc in Electrotehcnial sciences	IT Cluster of the Competitiveness for Macedonia Project, Professor at the Informatics Insititute, Natural Sciences and Mathematics Faculty, University "St. Cyril and Methodius"-Skopje	I believe that we should have done this step much earlier, however, it is not late even today in order to see what our future is going to be.
e-mail	marjan@on.net.mk			

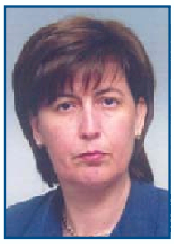
Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
13. Goce Armenski	03.12.1976	MSc in Informatics Electrotehcnical engineeer	Assistant at the Informatics Institute, Natural Sciences and Mathematcis Faculty, University "St. Cyril and Methodius" -Skopje	The Strategy is just a small and initial step in the activities that are going to take Macedonia to become a country in which the citizens enjoy the benefits in the everyday life brought about with the usage of the ICT.
e-mail	armenski@ukim.edu.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
14. Predgrag Chemerikic	24.10.1966	High school	Manager of ON.net (Internet Service Provider)	The Strategy is excellent, however, it has to be implemented as soon as possible
e-mail	pc@on.net.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
15. Antoni Peshev	12.09.1962	Electotechnical engineer	President of the American - Macedonian Chamber (AmCham), President of the Board of the Ultra Computing / Unet-Company Group	Strategies are created in order to be implemented, and if they are good, they last long. I believe our Strategy is good, and I wish the time is a witness to that.
e-mail	pesev@unet.com.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
16. Dejan Kalinikov	18.05.1971	Electotechnical Engineer, MBA	SEAF/Macedonia, Deputy Director	The Strategy represents a big step forward in the implementation of the vision - creation of the knowledge-based economy.
e-mail	dejan@seaf.com.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
17. Borislav Popovski	28.01.1962	PhD in Electrotechnical Sciences, Msc in Electrotechnical Sciences	President of the SC of MARNET, Professor at the Telecommunications Institute, Electrotechnical Faculty, University "St. Cyril and Methodius" - Skopje	The creation of the Strategy was an indespensable step for undertaking the major challenge that lies before us - its implementation.
e-mail	borop@etf.ukim.edu.mk			



Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
18. Katerina Kostadinova - Daskalovska	02.09.1959	Economist	Director of the State Statics Office	Dissemination of timely, reliable and comparable statistical information to as greater as possible number of users represents a significant input in the qualitative development of each democratic information system.
e-mail	katerina.daskalovska@stat.gov			

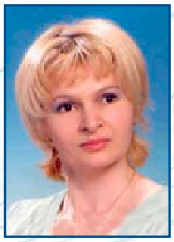
Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
19. Vladimir Radevski	30.10.1964	PhD in Informatics	Professor and Dean of the Communications Sciences and Tehcnologies Faculty, South-East European University	The Strategy is a kind of Hazaric Dictionary, representing the needs and the vision for delopment of the information society in Macedonia: the implementation of each project shall provide an impetus for realisation of many other projecst in, undoubtedly, this most perspective field.
e-mail	v.radevski@seeu.edu.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
20. Ejup Rustemi	24.09.1968	Electotechnical engineer (eletronics and telecommunica -tions)	Member of Parliament of the Republic of Macedonia	In order to have a successful realisation of this Strategy, it is necessary to include and to reach a real consensus among all stakeholders - Government, private sector, civil society, science, education, international organisations and media - on the importance of creation of information society and establishing a partnership around a common goal.
e-mail	ejuprustemi@yahoo.com			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
21. Sasho Josimovski	21.01.1963	PhD in Economics M.A in electorcehnical sciences	Professor of Information Technologies and Electronic Business, Economics Faculty, University "St. Cyril and Methodius" - Skopje	The implementaiton of the Strategy is a possibility for the Republic of Macedonia to involve itself more actively in the international processes as well as in the European integration processes.
e-mail	sasojos@eccf.ukim.edu.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
22.Mijalche Gjeorgiev	29.06.1980	MSc in e-business	Junior Asssistant, Economics Faculty, University "St. Cyril and Methodius" - Skopje	A promissing document that would bring Macedonia closer to the information society.
e-mail	mijalce@eccf.ukim.edu.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
23. Kosta Trpkovski	18.12.1956	Electrotechnical Engineer	Director of the Electronic Communications Agency	Bringing of the Information Society Strategy and the implementaion of the Action Plan shall mean progress for Macedonia and improvement of quality of living of each citizen of Macedonia.
e-mail	kosta.trpkovski@dtk.gov.mk			

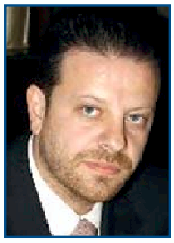


Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
24. Elica Perchinkova	27.04.1963	Electrotechnical Engineer	Senior Associate, Electronic Communications Agency	I believe that we have the energy and the potentional needed for the implementation of the Action Plan of the Strategy for the benefit of every one of us, for working environment and living conditions of greater quality.
e-mail	elica.percinkova@dtk.gov.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
25. Pece Mitrevski	12.06.1967	PhD in Informatics	Assistant Professor, Technical Fàculty - Bitola, University "St. Clement of Ohrid"	The Strategy without action is just a nice dream, however the action without a Strategy is a nightmare!
e-mail	pece.mitrevski@uklo.edu.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
26. Darko Perushevski	10.03.1971	Eletrotechnical Engineer	Manager, A1 Television - Skopje	Bringing of the Strategy, and especially the impelmention of the activiteis listed in it, are a necessary precondition for the end objective: citizens and businesses to enjoy completely the achievements of the technological development and to catch up the pace with the nations in whose company we want to be.
e-mail	darkop@a1.com.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
27. Vlado Vasiljevski	20.01.1958	Electrotechnical Engineer (informatics and automatics)	Government of the Republic of Macedonia, General Secretariat, Information Technology Sector	Each beginning is difficult, so is this one. The future has perspective.
e-mail	vvasiljevski@gov.mk			



Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
28. Igor Dimitrovski	29.06.1963	Electrotechnical Engineer (informatics)	Assistant Director of the Health Insurance Fund of Macedonia	A comprehensive and a widely accepted Strategy for development of the information society shall finally move Macedonia forward towards the information society family of the world.
e-mail	igord@fzo.org.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
29. Bardhyl Jashari	18.10.1971	Informatics engineer	Director of the Metamorfozis Foundation - Skopje	This Strategy provides the opportunity for the citizens and the non-governmental organisations to involve themselves more acitvely and with quality in the building of the information society in Macedonia.
e-mail	bjasari@soros.org.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
30. Valentin Pepeljugoski	01.09.1962	PhD in law	Legal Advisor; Member of the Competition Commission of the Republic of Macedonia, Professor at the Social Sciences Faculty	The best thing that happened to Macedonia in the past 15 years.
e-mail	vpepeljugoski@on.net.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
31. Matilda Dimovska	18.02.1961	M.A in Economics	United Nations Development Programme (UNDP), Programme Specialist	The information society, or the so-called knowledge-based economy or society, opens new challenges and opportunities in all domains of the Macedonian society. The influence of the ICT has defined itself as a decisive force in the modern world, as something that most fundamentally transforms and promotes economic and social activities. I hope that with this Strategy, Macedonia, in an accelerated manner, shall be able to catch up the pace with the global trends.
e-mail	matilda.dimovska@undp.org			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
32. Zoran Janevski	20.08.1967	Eletrotehcnical Engineer (eletronics, tellecommunica-tions)	United Nations Development Programme (UNDP), Project Manager	The strategy, in essence, is a framework that positions the role of the ICT in the acheivement of the national development goals, determines the legislation and the legal framework necessary for the creation of adequate envrironment for achievement of the common mision; identifies the existing opportunities, possibilities and challenges; determines the key strategic resources and initiatives needed for all of this to be realised.
e-mail	zoran.janevski@undp.org.mk			

Name and Surname	Date of Birth	Education	Current position and employment	On the Strategy . . .
33. Darko Dukovski	09.04.1974	MSc Electrotechnical Sciences	United Nations Development Programme (UNDP), Project Assistant	Brining of the Inforamtion Society Development Strategy and Action Plan should not be the end, but a begining of the efforts that the Republic of Macedonia makes in the creation of the information society and the improvement of the quality of living of its citizens.
e-mail	darko.dukovski@undp.org.mk			

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