

e-ADMINISTRATION STRATEGY OF PROVINCIAL AUTHORITIES

Provincial Secretariat for Regulations, Administration and National Minorities

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ACRONYMS

AMRES	Academic Computer Network of Serbia
BO (<i>Back Office</i>)	Software modules supporting the interaction of internal elements of provincial administration
CA (<i>Certificate/Certification Authority</i>)	Certification Authority
CMS (<i>Content Management System</i>)	Content Management System
DMS (<i>Document Management System</i>)	Document Management System
ECDL (<i>European Computer Driving Licence</i>)	European standardised set of basic knowledge in the field of computer literacy
ECMA (<i>European Computer Manufacturers Association</i>)	European Computer Manufacturers Association
EIF (<i>European Interoperability Framework</i>)	European Standard of eAdministration in Interoperability Framework
EU (<i>European Union</i>)	European Union
FO (<i>Front Office</i>)	Software modules supporting the interaction functions of provincial administration with external entities
G2B (<i>Government-to-Business</i>)	Business processes between administration and business entities
G2C (<i>Government-to-Citizen</i>)	Business processes between administrative authorities and citizens
G2G (<i>Government-to-Government</i>)	Business processes between administration entities
GIS (<i>Geographic Information Systems</i>)	Geographic Information System
HR (<i>Human Resources</i>)	Human Resources
ICT (<i>Information and Communication technologies</i>)	Information and Communication Technologies
ISO (<i>International Standards Organisation</i>)	International Standards ISO
IT (<i>Information Technologies</i>)	Information Technologies
IT sektor	Basic internal organisational unit of the Administrative and Technical Services Department – Information Technologies Division
ITIL (<i>The Information Technology Infrastructure Library</i>)	Environment containing the description of globally accepted good practice in the field of IT Service Management
Izvršno veće (<i>Executive Council</i>)	Executive Council of the Autonomous Province of Vojvodina
J2EE (<i>Java 2 Enterprise Edition</i>)	Development Environment - Java 2 Platform, Enterprise Edition
LMS (<i>Learning Management System</i>)	Educational Contents and Resources Management System
Lokalna samouprava (<i>Local Self-Government</i>)	The City of Novi Sad and municipalities on the territory of the Autonomous Province of Vojvodina
LRM pokrajinskih organa	Computer network of the Executive Council and Assembly of AP Vojvodina facilities
PKI (<i>Public Key Infrastructure</i>)	Public Key Infrastructure
Pokrajina (<i>Province</i>)	Autonomous Province of Vojvodina
QW (<i>Quick Winning</i>)	Label for projects resulting in quick positive effects
Skupština (<i>Assembly</i>)	Assembly of the Autonomous Province of Vojvodina
SCADA (<i>Supervisory Control And Data Acquisition</i>)	Supervisory Control and Data Acquisition System
SDI (<i>Spatial Data Infrastructure</i>)	Spatial Data Infrastructure
SUBP (<i>Database Management System DBMS</i>)	Database Management System
SWOT	<ul style="list-style-type: none">- Strengths;- Weaknesses;- Opportunities;- Threats.

EXPLANATIONS OF SOME NOTIONS AND TECHNICAL TERMS

Anti-Virus Software	It includes computer programs that attempt to identify computer viruses and other malicious software (malware), neutralise or eliminate them. [en.wikipedia.org/wiki/Anti-virus]
Application Application Server	It's a computer programme (used to solve specific users' problems). It is a server computer in a computer network intended to perform certain software applications. The same term is also used for the software installed in a computer to allow performance of other application. [en.wikipedia.org/wiki/Application_server]
Back-Office Functions (BO)	It refers to functions that support the tasks necessary for functioning of an organisation. Examples of these tasks include IT departments, accountancy department, human resources. [en.wikipedia.org/wiki/Back_office]
Backup	Copying or saving data to a different location. One can restore the <i>backup</i> copy if data is lost or damaged. [www.orafaq.com/glossary/faqglosb.htm]
Brand Name	A term, symbol, design or combination thereof that identifies and differentiates a seller's products or service. [www.powerhomebiz.com/Glossary/glossary-B.htm]
CA	It is an entity which issues digital certificates for use by other parties. It is an example of a trusted third party. CAs are characteristic of many public key infrastructure (PKI) schemes. [en.wikipedia.org/wiki/Certification_Authority]
CMS system	It is a software package that allows content management on one or more web-sites. The Content Management System allows one or more authors to prepare and publish the information online, without the need of preparing the HTML code. Modern systems allow the storing of information and resources (pictures, scripts, etc.) in databases, their reuse, automatic indexing and browsing, as well as workflow management (autorisation, publishing, withdrawal, filing). [www.parliament.vic.gov.au/sarc/E-Democracy/Final_Report/Glossary.htm]
Data Centre	It is a facility used to house large quantities of electronic equipment, mainly communication and computer systems. As the name indicates, an organisation maintains its data centre to allow the data management necessary for its operations. For example, a bank may have a data centre where all the information about the accounts of this bank's clients are maintained and transactions using these data are executed. [en.wikipedia.org/wiki/Data_center]
Desktop Computer	An independent personal computer, made for use on a desk or at home. This term is used mostly for the purpose of distinguishing the personal from mobile computers, as well as other forms of PCs, such as a personal digital assistant, server or mainframe. [en.wikipedia.org/wiki/Desktop_computer]
DHCP server	It is the software which automatically assigns IP addresses to client stations which log on the TCP/IP network. It eliminated the need for manual assigning of IP addresses. The DHCP software is usually performed on servers, but may also be a part of network devices such as ISDN routers and modem routers allowing a multiple Internet access to users. Recent DHCP servers dynamically update DNS servers after assigning the address. [www.shrewsbury-ma.gov/townisp/policieterminology.asp]
ERP (Enterprise Resources Planning)	ERP - ERP denotes a business system which integrates all aspects of business through modern computer technologies and the Internet. With their development, this system became an integral part of inventory of all modern corporations, as it allows a very simple online and offline business operations.

Front-Office Functions (FO) GAP	<p>http://www.yutrend.com/rubrike/osnove/index.php?clanak=e&rubrika=recnik</p> <p>Functions of an organisation interacting, on a daily and regular basis, with external entities, such as users and potential users.</p> <p>[www.bridgefieldgroup.com/glos3.htm]</p> <p>1. The process of determining, documenting, and approving the variance between business requirements and system capabilities in terms of packaged application features and technical architecture. 2. The process of determining and evaluating the variance or distance between two items' properties being compared.</p> <p>[www.georgetown.edu/uis/ia/dw/GLOSSARY0816.html]</p>
Integrated Services Digital Network (ISDN)	<p>A kind of network with the circuit commutation, designed to allow the digital (as opposed to analogue) transmission of voice and data through common copper telephone cables, resulting in a better quality and higher speed, when compared to what is provided by analogue systems. More broadly, is a set of protocols for establishing and breaking circuit switched connections and for advanced call features for the user. [en.wikipedia.org/wiki/ISDN]</p> <p>It is a unique number, a kind of telephone number used by devices (usually computers) to communicate with each other while sending the information via Internet. This allows devices which forward further the sender's information, to know where to send them in their next phase, and to devices receiving the information to know they are the intended destination.</p> <p>[en.wikipedia.org/wiki/IP_address]</p>
IP Address	<p>A set of programme platforms for development and execution of distributed multi-layer applications mostly based on modular components executed in the applicative server. J2EE platform is defined by its specification. J2EE is also considered informally to be a standard since providers must agree to certain conformance requirements in order to declare their products as <i>J2EE compliant</i>; (albeit with no ISO or ECMA standard).</p> <p>[en.wikipedia.org/wiki/J2EE]</p>
Java 2 Platform, Enterprise Edition (J2EE)	<p>Allows information technology administrators to install the latest modifications of Microsoft products in computers operating under Windows operative system.</p> <p>[http://technet.microsoft.com/en-us/wsus/default.aspx]</p>
Microsoft Windows Server Apdejt (update) Services (WSUS) Outsourcing	<p>Delegating <i>non-core</i> operations or activity to an external subject (such as sub-contractor) who specialised in that particular operation/activity. Outsourcing is a business decision which may be made for financial reasons or to achieve quality. The subgroup of the term (offshoring) points to the transfer of works to another country, by hiring a local subcontractor or through capacity building in regions with cheap labour force.</p> <p>[en.wikipedia.org/wiki/Outsourcing]</p>
Portal	<p>Tool or set of tools for organised knowledge discovery that assists identification and selection of appropriate target resources; provides federated searching and information retrieval of descriptive metadata from multiple, diverse target resources, including but not limited to commercial or licensed electronic resources, databases, Web pages, and library catalogues; manages access to target resources and portal functionalities for authenticated user communities based on various user classes and roles.</p> <p>[www.loc.gov/acq/conser/glossary.html]</p>
Poslovni proces	<p>Activity or a group of activities which are part of a service either to citizens or other organisational unit within or outside the particular Public Administration.</p>

Proxy server	<p>[www.cordis.lu/ist/ka1/administrations/publications/glossary.htm]</p> <p>It is a network service providing clients with indirect network connections with other network services. A client connects to the proxy server, requesting some service, such as a file, connection, web page, or other resource, available from a different server. The proxy server provides the resource by connecting to the specified server or from its own cache. In some cases the proxy may optionally alter the client's request or the server's response to different requests. [en.wikipedia.org/wiki/Proxy_server]</p>
RADIUS (Remote Authentication Dial In User Service) Server	<p>It is an AAA (authentication, authorisation, and accounting) protocol for applications such as network access or IP mobility. It is intended to be used in local and roaming situations. [en.wikipedia.org/wiki/Radius_server]</p> <p>Any computer on a network that contains data or applications shared by users of the network on their client PCs. [www.krollontrack.co.uk/legalresources/glossary.asp]</p>
System	<p>A group of components organised to accomplish specific functions or groups of functions. [IEEE STD 610.12]</p>
SWOT analysis	<p>It is a management instrument for developing structured response options to deal with external threats and exploit opportunities. [www.kfa-juelich.de/mut/vdi/vdi_bericht_e/glossar_e.html]</p>
IT Service Quality Management	<p>It is a systematic method for ensuring all the activities necessary to design, develop and implement IT services that meet the requests of an organisation and users, as well as their performance in a planned and economically effective manner. [en.wikipedia.org/wiki/Quality_management]</p>
Web-hosting	<p>It is a service that provides Internet users with on-line systems for storing information, pictures, videos or any other contents accessible through the Web. Web hosts are companies that provide space on a server they own for use by their clients as well as providing Internet connectivity, typically in a data center. Webhosts can also provide data center space and connectivity to the Internet for servers they do not own to be located in their data center. [en.wikipedia.org/wiki/Web_hosting]</p>
Web-Site	<p>It is a collection of connected web-pages stored in the web-server. [www.liv.ac.uk/webteam/glossary/]</p>
Workflow	<p>A route or systems used in a connected flow of activities with specified beginning and end describing the process. Flows define where to introduce inputs, decision making points and alternatives in outgoing routes, and are used in systems performing automatised routing. [www.bridgefieldgroup.com/glos10.htm]</p>

CONTENTS

PREAMBLE.....	8
SUMMARY.....	8
1 INTRODUCTION.....	9
1.1 BASIC GOAL AND PRINCIPLES.....	9
1.2 STRATEGY FRAMEWORK.....	10
1.2.1 Republic of Serbia – Province – Local Self-Government (G2G).....	10
1.2.2 Provincial Authorities (G2G).....	11
1.2.3 Provincial Authorities - Citizens (G2C).....	11
1.2.4 Provincial Authorities – Business Entities (G2B).....	11
1.3 ENVIRONMENT FOR DEVELOPMENT OF eADMINISTRATION.....	11
1.3.1 Development of eAdministration at National Level.....	11
1.3.1.1 Strategy of Public Administration Reform in Republic of Serbia.....	12
1.3.1.2 Strategy of Information Society Development in Republic of Serbia.....	12
1.3.2 Development of eAdministration at Provincial Level.....	12
1.3.2.1 Strategy of Provincial Administration Reform and Development.....	13
1.3.3 Strategic Partnership.....	14
1.4 ANALYSIS OF THE EU PRACTICES IN DEVELOPING eADMINISTRATION.....	14
1.4.1 Background of Information Society Development.....	15
1.4.2 Legal Framework.....	15
1.4.3 Information Society Development Level.....	15
1.4.4 Electronic Public Services.....	15
1.4.5 eAdministration Competences.....	16
1.4.6 eAdministration Infrastructure.....	17
1.4.7 eAdministration Standards.....	17
1.5 GENERAL REQUIREMENTS.....	17
1.5.1 Organisational Infrastructure.....	17
1.5.2 Normative – Legal Regulation.....	18
1.5.3 Technical and Technological Resources.....	19
1.5.4 Information Resources.....	19
1.5.5 Human Resources.....	19
2 Current Situation in the Provincial Authorities.....	19
2.1 Business Processes.....	19
2.1.1 Description of Existing Business Processes.....	19
2.1.2 Classification of Existing Business Processes.....	20
2.2 ORGANISATIONAL STRUCTURE OF THE PROVINCIAL AUTHORITIES.....	22
2.2.1 The Assembly Structure.....	22
2.2.2 The Executive Council Structure.....	22
2.2.3 Structure of the Provincial Administrative Authorities.....	23
2.3 RELATION TO THE ONGOING PROJECTS.....	24
2.4 EXTERNAL INFORMATION ENVIRONMENT.....	24
2.4.1 Organisational and Physical Connection.....	24
2.4.2 Portals and Web Sites.....	25
2.4.3 ICT Standards.....	25
3 INTERNAL INFORMATION ENVIRONMENT.....	26
3.1 EXISTING INTERNAL INFORMATION SYSTEMS / APPLICATIONS.....	26
3.1.1 Internal Supply of Information.....	26
3.1.1.1 Applications and Systems.....	26
3.1.1.2 Business Processes Supported by Systems i.e. Applications.....	28
3.1.2 ICT Infrastructure.....	31
3.1.2.1 Existing Local Computer Network of Provincial Authorities.....	31
3.1.2.2 Computer Infrastructure- Servers and Desktop Computers.....	31

3.1.2.3	Softwares	32
3.1.3	Data Security and Protection	33
3.1.4	Role and Position of ICT and Human Resources	33
4	SWOT ANALYSIS.....	35
4.1	SUMMARY OF THE SWOT ANALYSIS RESULTS.....	37
5	VISION.....	37
5.1	OBJECTIVES	38
5.2	ORGANISATIONAL INFRASTRUCTURE.....	43
5.2.1	Competencies for the provincial eAdministration.....	43
5.2.1.1	Policy making.....	43
5.2.1.2	Coordination of Development of Provincial eAdministration	44
5.2.1.3	Implementation, Support and Development.....	44
5.2.1.4	Supervision.....	44
5.2.1.5	Security and Data Protection	44
5.2.2	Distribution of Competencies and Responsibilities for Provincial eAdministration	45
5.2.2.1	Committee for Management of eAdministration Strategy of Provincial Authorities	45
5.2.2.2	The Administrative and Technical Services of Provincial Authorities – IT Sector	46
5.3	ICT INFRASTRUCTURE	46
5.3.1	Communication Infrastructure	46
5.3.2	Computer Infrastructure	47
5.3.3	Provincial Administrative Registries	47
5.3.4	Provincial Spatial Infrastructure	47
5.3.5	Provincial eAdministration Portal	47
5.3.6	Standardised Software Solutions and Modules.....	47
5.3.7	IT Security.....	48
5.3.8	Methodologies for developing IT solutions, management of eAdministration projects and quality assurance	48
5.3.9	IT Processes.....	48
5.3.10	Methodologies for functionality assurance.....	49
5.3.11	Measurement of system efficiency and assessment.....	50
5.3.12	Outsourcing	50
5.4	HUMAN RESOURCES	51
6	GAP ANALYSIS	51
7	ACTION PLAN AND PROJECTS	53
7.1	TIME-FRAME OF PROVINCIAL AUTHORITIES eADMINISTRATION STRATEGY..	54
7.2	PROJECTS	54
7.3	SUB-PROJECTS	61
8	APPENDIX.....	66
Appendix no. 1	66	
List of basic normative-legal documents	66	
Appendix No. 2.....	67	
Business Processes.....	67	
Appendix No. 3.....	68	
Organisational Structure of Provincial Authorities.....	68	
Appendix No. 4.....	69	
Position of the ICT Sector Within the Organisational Structure	69	
Appendix No. 5.....	70	
ICT Network Infrastructure.....	70	
Appendix No. 6.....	71	
Project Overview.....	71	

PREAMBLE

Development of the e-Administration system is a strategic decision in any country, representing the key factor for its inclusion in the modern information society of the 21st century. At the end of 2004, the Government of the Republic of Serbia adopted a document titled Public Administration Reform Strategy in the Republic of Serbia, which, in order to modernise the technical and technological aspects of the work of public administration, through the application of modern information and communication technology achievements, established the principle of modernisation as one of the essential reform principles. In September 2006, the Assembly adopted the Decision on Provincial Administration Reform and Development Strategy¹, establishing modernisation as one of the pillars of provincial administration reform².

Information Society Development Strategy of the Republic of Serbia, adopted by the Government of the Republic of Serbia in October 2006, confirmed the interest of the state to pay special attention to information and communication technologies in all development strategies, due to great possibilities and impact on national economies and global competitiveness, whereas the provincial administration reform and modernisation based on an extensive use of ICT (eAdministration), are defined as one of the key elements of the overall transition of the Republic of Serbia into a modern information society.

In development of the Province, eAdministration plays a significant role, being the basis of modernisation and improvement in the work quality of provincial authorities.

SUMMARY

Provincial Administration Reform and Development Strategy, as a basic step in implementing the measures and activities aimed at modernisation of provincial administration, envisages adoption of the strategic documents for the purpose of introducing the quality management and ICT application in the work of provincial administration. Starting from the competences of provincial authorities and the fact that there is a need for this strategic document to include a more extensive field, the Council for Public Administration Reform, as an authority responsible for strategic management of the provincial administration reform, constituted a working group whose task was to prepare the strategy of eAdministration of provincial authorities. The result of this group's efforts is this document, passed in compliance with the Republic and European standards and values, proposing to the Executive Council to introduce the system of eAdministration of provincial authorities, as the first step towards the information society development in the Province. A prerequisite for an efficient implementation of measures and activities established in this document is a decision that needs to be passed by the Executive Council on adopting this document that will reflect a unique will of the provincial management to modernise public authorities. The established action plans represent the integral part of the strategy, drawn up for the purpose of implementing this lasting, expert and complex process.

¹ Decision on Provincial Administration Reform and Development Strategy "Official Journal of the APV", No. 14/06.

² Pillar of provincial administration reform - classified measures and activities for the purpose of implementation of goals and principles. Pillars of the Provincial Strategy include "Administrative Capacity Building of Provincial Administration, Measures for Strengthening Employees Potentials - Human Resources"; "Anticorruption Measures and Transparency of Provincial Administration"; "Modernisation of Provincial Administration".

1 INTRODUCTION

Adoption of the eAdministration Strategy of Provincial Authorities is needed to establish the unique planning, programme, organisational and normative and legal frameworks required for enhancing the provincial administration, in the broadest sense of the word. The eAdministration Strategy of Provincial Authorities is based on a consideration of the current situation in the fields relevant for the introduction of eAdministration of provincial authorities. Through assessment of the current conditions, the basic goal and principles of this document have been established, as well as the vision and action plans with the timeframes for the implementation of projects. This strategic document is, first of all, directed towards provincial authorities, but in order to modernise the work of provincial public sector and develop the information society, the principles and activities envisaged in this document may also be applied in the work of other organisational forms established by the Province, through its authorities. The envisaged timeframe of the eAdministration Strategy of Provincial Authorities has been established on a short-term basis (by the end of 2007), mid-term basis (by 2008/2009) and long-term basis (by 2010/2013).

WHY IS INFORMATION SCIENCE IMPORTANT TO US?

Modern telecommunication infrastructure provides automatization of business processes and an undisturbed flow of information through integrated systems of authorities, whereas the application of ICT provides users with a better access to information and services, at lower costs.

In this manner, simplified and modern business processes provide an enhanced organisation and management, efficient and economical conduct of business, along with decreasing the workload of the employed and ensuring the work transparency.

1.1 BASIC GOAL AND PRINCIPLES

The basic goal is modernisation, as well as the integrated application of the ICT in provincial authorities to enhance the efficiency, effectiveness, transparency, responsibility and economy in the work of provincial authorities and provincial civil servants; to improve the quality and availability of information and services provided to users by provincial civil servants and ensure a more active participation of citizens in decision-making processes and spreading the democracy in the society (eGovernment). This strategy's objective is not to directly solve the deficiencies of organisation and work of the provincial administration by applying the ICT. It is adopted only to support the reforms and development.

Prerequisites of an efficient development of eAdministration of provincial authorities include the analysis of the current situation related to all the resources relevant for the development, maintenance and enhancement of one such system; defining the concrete measures, through action plans, in compliance with the existing strategic and positive legal frameworks; the grounds for the strategic document found in principles, standards and experiences of the EU³ countries in this field; defining a sustainable vision and cooperation at all levels of authority in the Republic of Serbia and with domestic scientific and research institutions. In this procedure, it is necessary to observe the principles of integrity of the information system, availability of service to users, security and protection of data, utilisation of modern technologies and a constant development, relying on scientific and research institutions.

³ Hungary and Slovenia are some of the EU countries in which this process was initiated several years ago.

In accordance with the Information Society Development Strategy in the Republic of Serbia⁴ and based on special principles typical of the territory of the Province, eAdministration shall be based on the following basic principles:

1. **Equal Access for All:** public services need to be accessible to all citizens, and any content of public relevance should be made available to all citizens under equal conditions and in the electronic format;
2. **Prevention of Digital Division and Protection of Human and Minority Rights:** eAdministration, as well as the information society in general, should respect general human and minority rights and prevent discrimination of citizens on the grounds of social differences in terms of income, technical knowledge, gender, religion, age, national affiliation etc.;
3. **Security and Protection of Privacy:** public services must be secure and must protect the citizens' privacy;
4. **Open System:** eAdministration shall be applied in compliance with the principles of an open system based on open and mutually functional ICT solutions provided by different producers. eAdministration systems should use the solutions that are based on open standards;
5. **Coherency and Functional Integrity:** eAdministration is a comprehensive, but integrated information system, functioning as a coherent system in which integrity and joint functioning of different heterogeneous parts is achieved through standardisation and a coordinated development;
6. **Independence in Developing:** any provincial authority may independently develop and manage their subsystem in accordance with previously established eAdministration standards and defined development plan;
7. **Flexible and Modern ICT Solutions:** applied ICT solutions shall be based on the latest methodological and technological achievements, providing the productive development and ensuring flexibility for potential organisational and technological changes;
8. **Relying upon the ICT Sector and Academic/Research Community:** in order to allow an opportunity for the ICT sector development and improve the development of the academic/research community, eAdministration development shall mostly be based on cooperation with domestic ICT companies and academic institutions, as well as research centres.

1.2 STRATEGY FRAMEWORK

1.2.1 Republic of Serbia – Province – Local Self-Government (G2G)

eAdministration Strategy of Provincial Authorities primarily refers to modernisation of administrative procedures at the provincial level in the framework of information society development in the Republic of Serbia. Since the provincial administration is an integral part of the public administration system of the Republic of Serbia, the principles and postulates of public administration shall be observed in this strategy.

It is necessary to initiate the strategic networking and partnership with republic and local self-government authorities, in order to successfully implement the comprehensive process of establishing eAdministration of provincial authorities, as well as the programme "eVojvodina", through connecting, cooperation and active participation in development activities at all levels of authority, for the purpose of ensuring a greater number of satisfied users (citizens, business entities etc.).

⁴ Information Society Development Strategy in the Republic of Serbia, published in "The Official Gazette of the RS", No. 87/06.

1.2.2 Provincial Authorities (G2G)

Organisation of provincial authorities is based on the competences of the Province, prescribed Constitution of the Republic of Serbia, the Statute of the Autonomous Province of Vojvodina and laws. Provincial authorities are established in the Statute of the Autonomous Province of Vojvodina⁵, and include the following: the Assembly, the Executive Council and Provincial Administration authorities (Provincial Secretariats and other administrative authorities).

For the purpose of achieving the basic goal of this Strategy, the priority is given to ensuring the work modernisation and a high level of ICT service in the Assembly, the Executive Council and Provincial Administration authorities. Application of the Strategy in the work of the Assembly implies its application in the Assembly Service, being a professional service responsible for performing the activities attaining to the needs of the Assembly, Committees, Deputies and Deputies Groups.

1.2.3 Provincial Authorities - Citizens (G2C)

In order to essentially change the manner in which provincial authorities perform their activities, eAdministration of the provincial authorities should also include the measures intended for the citizens, service users. eAdministration provides citizens with the possibility to save time and money, to use simple procedures to access the correct data and updated information, to submit all their requests in one place (e.g. Internet portal), as well as to be able, at any time, to get the information on the current stage of request processing and so on.

1.2.4 Provincial Authorities – Business Entities (G2B)

Business entities which are users of services provided by provincial authorities include organisations, institutions, unions, associations, public services, enterprises, firms and so on, usually seated on the territory of the Province, performing the activities in different fields which are of relevance to the Province.⁶ Users of services provided by provincial authorities are domestic and foreign business entities whose business interest is to cooperate with provincial authorities (e.g. allocation of funds in tenders, public procurements, use of data from the record kept by provincial authorities etc.). Modernisation of services that provincial authorities provide to business entities is also included in this Strategy, through application of ICT in implementation of tenders and public procurements.

1.3 ENVIRONMENT FOR DEVELOPMENT OF eADMINISTRATION

1.3.1 Development of eAdministration at National Level

Strategy of Public Administration Reform in Republic of Serbia (a document promoting the application of modern ICT achievements in the work of public administration) and the Information Society Development Strategy in Republic of Serbia (a document which, in its special section, deals with development of eAdministration at national level) represent the framework for passing this document, as well as grounds for strategic partnership in the process of eAdministration development.

⁵ Statute of the APV "Official Journal of the APV" No. 17/91.

⁶ Constitution of the RS ("Official Gazette of the RS", no. 98/06), in Article 183. specifies the following: fields which are of relevance to the Province (exercising human and minority rights; urban planning and development; agriculture, water management, forestry; fishing, hunting; tourism; catering; spas and health resorts; environmental protection; industry and crafts; road, river and railway transport, road rehabilitation; organisation of fairs and other economic events; education; sport; culture; health care and social protection; public informing at provincial level).

1.3.1.1 Strategy of Public Administration Reform in Republic of Serbia

Starting from the basic principles of the European administrative framework, this document defines the basic principles of the public administration reform pursued by the Government of the Republic of Serbia in achieving the goals of public administration reform, which also provided the grounds for regulations administering certain fields (decentralisation, depolitisation, professionalisation, rationalisation and modernisation). This document expresses a clear political will to carry out public administration reforms, among other things, through the application of ICT. In addition, guidelines have been established, based on which the processes of functioning and methodology of information and communication technology application should become the basis for the entire reform of public administration, as well as a clear position that regulations in the field of information technologies should be harmonised with the EU legislation. The first time that the term "electronic administration" is used in an official Government document is actually here, in this Strategy, denoting one of the main instruments to increase efficiency and reliability of the public administration work, being an instrument which provides the general public with a fast and easy access to information, as well as one of the measures of rationalisation of public administration.

1.3.1.2 Strategy of Information Society Development in Republic of Serbia

By adopting this Strategy, which defines the goals of information society development in the Republic of Serbia, as well as the plan how to achieve them, the Government of the Republic of Serbia established that developing the information society is of priority significance for development of the Republic of Serbia in general. The Strategy envisages the enhancement and development of information-communication infrastructure, with prerequisites for a successful achievement of these goals including development and application of software with an open code, particularly in public, scientific and education sector, as well as insisting on open standards and system interoperability, in compliance with the EU recommendations contained in eEurope plans. Special attention is paid to development of eAdministration at national level to achieve general economic, social and political goals, such as modernisation of public administration, development of national economy and a more extensive engagement and more active participation of citizens in democratic processes. The Republic strategy, in the section dealing with eAdministration, does not stipulate strategic partnerships with the provincial administration, nor does it contain any other elements related to the provincial administration.

1.3.2 Development of eAdministration at Provincial Level

Development of eAdministration at Provincial level is conditioned by the adoption of this Strategy as well as key factors, which could, taking into account the current situation, be divided into those providing incentives (political will, leadership and strategic thinking) and those inhibiting (financing, human resources, resistance to changes and active participation of citizens and business entities).

Considering the current situation, it may be concluded that the **political will**, being the first key factor for establishment of eAdministration and provision of available resources, is ensured through adoption of the Reform and Provincial Administration Development Strategy by the Assembly. **Leadership and strategic thinking** for adoption and application of the eAdministration vision, particularly to overcome and mutually reconcile the interests of different actors, has also been ensured. Namely, the Executive Council selected the concept according to which strategic management of the provincial administration of reform has been delegated to specially established Council for Provincial Administration Reform, headed by the President of the Executive Council, including members such as heads of key provincial authorities, the Secretary of the Executive Council and Director of the Administrative and Technical Services Department.

At the operative level, reform management has been delegated to the Provincial Secretariat for Regulations, Administration and National Minorities, in cooperation with the competent provincial authorities. The Commission for Development of the Information System of Provincial Authorities was established, as a non-standing working body of the Executive Council, whose activities, though, have not significantly contributed to modernisation of the provincial administration.

For development of eAdministration of provincial administration and in order to ensure a continuous development in this field, it is necessary to establish an integrated system of planned **financing**, to prevent negative effects arising from the previous method of financing. Namely, until now, significant finances have been earmarked from the budget of the AP Vojvodina, through different levels of financing (for implementation of the "eVojvodina" programme of the Provincial Secretariat for Science and Technological Development, development of ICT infrastructure through the work of Administrative and Technical Services Department and implementation of a number of projects by other provincial authorities intended for the ICT application), and the same tendency has continued in 2007.

The existing **human resources** may have a negative effect on the development of eAdministration of provincial authorities, as they do not possess the required knowledge and skills to use the ICT, and there are not enough IT professionals employed in the provincial authorities. The expected **resistance towards changes** is classified in negative effects, as many would consider eAdministration as a disturbing factor and a threat to the current positions they hold. Insufficient or inadequate ICT education of population and a lack of trust in electronic public services, as well as the insufficiently widespread Internet use, have negative effects on the **participation of citizens and business entities** in this process.

1.3.2.1 Strategy of Provincial Administration Reform and Development

Strategy of Provincial Administration Reform and Development is a framework for the eAdministration Strategy of Provincial Authorities. This strategic document expresses a clear political will to carry out provincial administration reforms and development, among other things, through the application of information and communication technologies (ICT). Implementation of the action plan was approached in an integrated and coordinated way, which resulted in several mutually related provincial regulations and strategic documents based on the principles of the Strategy of Provincial Administration Reform and Development. eAdministration Strategy of Provincial Authorities is adopted as one of the two strategic documents to regulate a comprehensive process of implementing the third pillar of the reform named "Modernisation of Provincial Administration".

Depolitisation and Professionalisation

This strategic document is based on the principles of depolitisation and professionalisation, in order to ensure professional human resources and establish the strategic management system to be free of political impact. Adoption of the Decision on Provincial Civil Servants⁷, through the regulation of rights and obligations of provincial civil servants, start of employment, classification of work posts, professional capacity building and development, as well as a number of other issues, provided the grounds for particular key factors in the development of eAdministration at provincial level.

Modernisation

Modernisation of provincial administration, in accordance with the introduction of quality management, is an inevitable condition (*conditio sine qua non*). Introduction of information and communication technologies in the public administration work is necessary, precisely due to the standardisation of business processes applied in the EU

⁷ Decision on Provincial Civil Servants (Official Journal of APV, number 5/07)

countries (CAF or ISO 9001-2000). Adoption of the management quality strategy in provincial administration is expected to take place by the end of 2007, or the beginning of 2008.

Rationalisation

Automatisation of business processes through eAdministration systems of provincial authorities reduces the workload of provincial civil servants, which is leading to the application of the principle of provincial administration rationalisation, as well as establishment of the adequate organisation of the provincial administration and determining the optimal number of task performers. Also, the envisaged manner of organising and functioning of eAdministration should provide for an easy adaptability to future legislative and organisational changes.

Exercising the Full and Effective Gender, Linguistic and National Equality

Exercising the full and effective gender, linguistic and national equality in provincial administration shall be ensured through the measures provided in this Strategy, by promoting eAdministration without discrimination on any grounds and by ensuring multilingualism in the communication with users.

Anti-Corruption Measures and Transparency of Provincial Administration

A more transparent and responsible provincial administration, as well as a more active participation of citizens in decision-making processes and control of the provincial administration work, are only some of the eAdministration expected results. Provisions of the Decision on Provincial Civil Servants defined and established certain prohibitions (discriminations and privileges, abuse of power, accepting or giving gifts and other benefits), keeping professional and other secrets, use of trusts, conflict of interests and so on. The Executive Council also adopted the Code of Conduct in Provincial Authorities, as a prescribed set of rules of behaviour that need to be observed by provincial civil servants and employees, as well as the elected persons in provincial authorities, when performing the provincial administration affairs.

1.3.3 Strategic Partnership

Strategic partnership is considered necessary, in terms of cooperation and agreement between all participants on the goals and visions of eAdministration, with public administration (Republic ministries); local self-government (city, municipalities; civil society; business entities; academic and scientific communities and ICT sector. So far, intense cooperation has been established with the Faculty of Sciences and Faculty of Technical Sciences of the University of Novi Sad, through the implementation of the "eVojvodina" project.

1.4 ANALYSIS OF THE EU PRACTICES IN DEVELOPING eADMINISTRATION

According to the strategy adopted in Lisbon, the objective of which was to make the EU, by 2010, the most competitive and dynamic knowledge-based economy, with higher employment rates and appropriate level of social cohesion: European Commission adopted Action Plan «eEurope 2005». One of the Plan's key action points in implementation of the objectives was bringing national government closer to citizens and economy by ensuring modern public services through internet (eAdministration). Documents titled "i2010 – A European Information Society for Growth and Employment" were adopted, as well as Minister Declaration and directives from Ministers' Conference: "Transforming Public Services, 24 November 2005, Manchester, UK". Common objectives and principles⁸ were defined at the EU level, and a portion of resources for financial and professional support for development of information society programs,

⁸ eEurope 2005, http://europa.eu.int/information_society/eeurope/2005/index_en.htm; i2010, http://europa.eu.int/information_society/eeurope/i2010/introduction/index_en.htm

especially in the countries candidates for membership, were secured. Significant are financial and organisational EU efforts in research related to development of ICT through various programs that are financed by the joint EU resources. Principles of ICT implementation in the member countries are based on fundamental principles of the EU and adjusted to the needs and abilities of the individual countries. The EU member countries differ in: history of information society development; legal framework; developmental level; electronic public services; delegation of competencies and available infrastructure⁹.

1.4.1 Background of Information Society Development

The earliest activities in the development of the information society started in the late 50-ies of the last century (in Great Britain in 1957, and in Denmark in 1959).

The EU countries adopted the first eAdministration development strategy during the second half of the 90-ies and in 2000, with the exception of Denmark (1983) and Cyprus (1989). The latest revision of the development of eAdministration was performed in 2005 by most EU countries, while Cyprus, Holland and The Slovak Republic completed theirs in 2004 and Slovenia in 2006. Intranet system of the public administration authorities already exist or is in its final phase, with the exception of Denmark which does not have one, and the Slovak Republic which had started its development, and then discontinued it due to financial reasons. Denmark was the first one to establish electronic public service in 1970, through *Central system for tax report*, while other EU countries established theirs at the end of the 90-ies and, in most cases, at the beginning of 2000.

1.4.2 Legal Framework

Legal regulative rules present very important segment of the development of the information society in whole, and especially of the eAdministration. Legal regulative rules of EU countries are harmonized in the area of eAdministration, which is mostly divided in two groups: *basic legal regulative rules* (eAdministration in the narrowest sense, freedom of information, data protection/privacy) and *legal regulative rules for services and infrastructure* (eTrade, eCommunication, eSignature or eIdentity, eProcurement, and use/exchange of information in the public sector).

1.4.3 Information Society Development Level

In the EU countries indicators of the development level of an information society, in accordance to eAdministration, are presented through individuals and companies which have accessed public services online due to the following reasons:

- Information access;
- Form downloading;
- Submission of the filled forms.

The data, provided by the mentioned methodology, show that public services internet access is used more by business entities (companies) then by citizens. For example, information access was used by 55% companies and 19% citizens, form downloading 51% companies and 10% citizens, and submission of the filled forms 34% companies and 7% citizens.

1.4.4 Electronic Public Services

Coordinated ICT implementation is noticeable in the government and administrative authorities aiming to establish citizens' oriented government and administration, as one of the common principles of ICT implementation in all member countries, and a principle

⁹ eAdministration in the Member States of the European Union, <http://ec.europa.eu/idabc/en/document/5094/254>

that is implemented in the candidate countries as well as part of the EU support programs. In this context, one of the main objectives is establishment of public services systems in which state would have a leading role. Public services are defined for citizens and business entities at the EU level and implemented by government and administrative authorities. Total of 20 public services are defined, for 12 of them the target group are citizens while for 8 of them the target group are businesses.

As an important element in the development of public services, a methodology for assessment of the level of their development is identified. The services are assessed by benchmark methodology, with marks 1 to 3 or 4 (depending on the service) where **1**-stands for information availability online; **2** – one way interaction (downloading forms); **3** – two- way interaction (form processing and authentication); **4** – full electronic case handling (receipt, decision and delivery i.e. payment).

1.4.5 eAdministration Competences

The EU countries have clearly defined system which encompasses aspects of ICT implementation in the public government and administration and their distribution to responsible institutions and individuals.

Hence two levels of eAdministration are differentiated: national and regional/local.

The aspects of ICT implementation in the public administration encompass:

- Politics and strategy;
- coordination;
- implementation;
- support;
- financial monitoring;
- data protection.

There are three levels of the organizational structure:

- level of central government;
- level of regional government;
- level of local government.

In the EU countries all aspects of ICT implementation in the public administration, except data protection, are delegated to all organizational levels.

Data protection is performed at the national level.

Competencies of Regional /Local eAdministration

Competencies of regional and local levels of government in **policy making** process vary from very small (Hungary, where almost all competencies are delegated to the central government authorities) to extremely big (Germany, where competencies for creation of eAdministration policies are given to federal states, and the coordination is performed at the central government level). The responsibility is delegated to individuals, existing regional /local level authorities as their additional competency, administrative authorities whose main competence is information society, particularly to established authorities; or the competency is assigned to the combination of the mentioned organizational forms.

Most often this competency is delegated to local government, and if it is delegated to an individual, it is a person that holds the highest position at the local level.

Strategy making is part of the duties of local government authorities or the strategy is created at the national level with the participation of regional/local authorities.

Coordination is most often realized through particularly defined projects –platforms which are led at the national level and with the participation of representatives of all government levels. Accountability for coordination at the provincial and municipal levels is delegated to the appropriate administration level (regional/local). In the most EU countries **implementation** tasks are delegated to regional/local administrative authorities and particularly formed departments at the regional/local level. There are countries which, besides regional/local level, include national institution in the

implementation process. **Supporting activities** are, most often, provided by particularly organized institutions (services, agencies) at the regional/local level. Commonly accepted practice is to perform **financial monitoring** at the assembly level through existing services for financial monitoring. Thus supervision is equally delegated to the national and regional/local levels (half of the EU countries at the national level and the other half at the regional/local level). **Data protection** is delegated at the regional/local level only in Germany.

1.4.6 eAdministration Infrastructure

Lithonia and Poland are the only EU countries that do not have government *Portal*. Seventeen EU countries provide interactive and transactional services through the portal, five of them have differentiated portals for citizens and business subjects. Luxemburg only has portal for business entities. Six of the countries provide only information services. Private communication networks for state administration exist in 19 countries, where France, Hungary and Spain networks are connected to TESTA the European network. The establishment of state network in Sweden is in process. Infrastructure for electronic identification is completely implemented in five countries. In four countries it is partly implemented, while in 16 countries it does not exist. Activities for implementation of electronic identification are in process in France, Germany, Hungary, Holland, Portugal, Slovenia and Spain. Infrastructure that supports public procurement is entirely implemented in eight countries. It is partly implemented in eight countries, and in nine countries it is not implemented. In France, Great Britain and Belgium systems for knowledge exchange are implemented. In five countries exchange of documents between the administration authorities is supported, and Estonia has specific system for administration of the state information system and database network.

1.4.7 eAdministration Standards

Focus of the efficient eAdministration is based on the optimal use of ICT. Its main requirement is implication of standards. Standards implementation is the basis of development of all EU countries, specially the ones that are leaders in successful implementation of ICT in the administration work. For EU countries, environment that identifies standards is defined for the better achievement of interoperability [European Interoperability Framework](#) (EIF). EIF is considered an addition to the adequate national projects. Such environments are aimed to those who are responsible for development of ICT strategies, ICT plans and projects, as well as to the manufacturers of software for eAdministration department.

1.5 GENERAL REQUIREMENTS

In the provincial authorities, transfer to new methods of operation is inevitable, on the other hand it is extremely complex, expensive and often long-lasting process. Inevitability is caused by the fact that the world is in the information era and without electronically supported system of operation inclusion of individuals and institutions in business processes will be impossible. Complexity of the process is a consequence of all the requirements needed for transfer to electronic operation, the most important ones being: organisational infrastructure, normative-legal regulation, technical-technology, informational and human resources.

1.5.1 Organisational Infrastructure

Organisational infrastructure implicates set system of strategy implementations with defined accountabilities and responsibilities. The existing organisational structure of the provincial authorities is irrational in this area because accountability of operations that are in various segments related to implementation of ICT, information systems,

application and use of internet, as well as ICT infrastructure, is distributed among six different authorities: Provincial Secretariat for Science and Technological Development; Provincial Secretariat for Information; Provincial Secretariat for Architecture, City Planning and Construction; Provincial Secretariat for Environmental Protection and Sustainable Development; Provincial Secretariat for Regulations, Administration and National Minorities, and Administrative and Technical Services of Provincial Institutions. Consequently, there is a certain overlapping of accountabilities between these authorities, while many current operations, are not placed under accountability of any authority.

Establishment of working body at the Executive Council's level, which would be accountable for the strategy coordination, presents an important pre requirement for the creation of the mechanism for result evaluation, financial monitoring and monitoring of the strategy implementation, in order to best define corrective measures of this complex process.

Division of responsibilities in this system should encompass distribution of responsibilities for the operations of implementation, coordination and support.

Implementation operations are related to normative and organisational level, ICT infrastructure, management of provincial authorities' eAdministration programmes and project, where it is necessary to distribute responsibilities between the existing authorities or create separate services at the provincial level. Provincial authorities would appoint an individual who would be responsible for coordination. Creation of an internal organisational unit within provincial authorities is needed for the support operations, which are linked to the implementation of hardware, communicational and software support; or they should be organised as part of the responsibilities of separate services. Financial monitoring would be realized by the Provincial Secretariat for Finances, through the budget inspection.

1.5.2 Normative – Legal Regulation

According to the responsibilities established by the Constitution of the Republic of Serbia, the Province has no legislative power. Thus, we can primarily discuss the laws and bylaws that are adopted at the national level, and then the decisions of the provincial authorities. Normative-legal regulation relevant to the implementation of eAdministration with the provincial authorities, encompasses adoption of appropriate bylaws which would, according to the Constitution and laws, further define issues related to: publicly important information, data and document protection, provincial information systems, electronic documents, electronic signature etc.

Positive-legal regulations of the Republic of Serbia adopted during the '90-ties of the XX century are not in accordance with the current level of technological development and standards in the area of information technologies, nor are in accordance with the legislature of the EU and the international standards (here we talk about the Law on Information System of the Republic of Serbia¹⁰ which is still in effect). In addition to the above mentioned strategic documents regarding reforms of the public administration and development of the information society, since 2004 the laws were passed that relate to the actual level of ICT development and are in accordance with the EU legislation (Law on Registration of the Economic Entities; Law on Free Access to the Information of the Public Importance, Law on Electronic Signature¹¹). These laws contain important components of the eAdministration concept, such as: introduction of electronic signature and electronic certificates, possibility of electronic submission of citizens' and business entities' requirements, provision of services via internet, communication between users

¹⁰ Law on Information System of the RS "Official Gazette of the RS", No.:12/96;

¹¹ Law on Registration of the Economic Entities "Official Gazette of the RS", No. 55/04; Law on Free Access to the Information of the Public Importance" Official Gazette of the RS", No. 120/04; Law on Electronic Signature "Official Gazette of the RS", No. 135/04.

and government authorities via electronic mail, sanctioning of unprincipled and malicious behaviour etc.

The most important provincial regulation in this area is the Decision on Provincial Administration Reform and Development Strategy, the main part of which is the mentioned strategic document where modernisation of the provincial administration is established as a set of measures and activities necessary for achievement of desired reform objectives through implementation of ICT in the provincial authorities. The basic normative-legal documents are presented in the appendix 1.

1.5.3 Technical and Technological Resources

It is necessary to define the ways of provision of technical and technological resources (communicational, computer and software), which implies identification and implementation of standards for each class of resources and provision of financial means for the purpose.

1.5.4 Information Resources

Information resources imply data needed for provision of functions of the provincial authorities. It is necessary to precisely define conditions under which the data will be accessible, according to the nature of data (e.g. data of public importance – available to wide public; personal data – available according to regulations).

1.5.5 Human Resources

For successful implementation of this strategy in the provincial administration authorities, it is of crucial importance for the employees to be trained to use these technologies. According to the Decision on Employees in the Provincial Authorities, the Executive Council adopts each year a Programme of the general professional development of the employees working in the provincial authorities, based on the Human Resources recommendation, organised as an independent services responsible for human resources in the provincial administration authorities, organisations and services. Starting with the strategy framework, and according to short-term and midterm objectives, in the further text, term human resources will refer to employees in the provincial authorities such as IT professionals and its users.

2 Current Situation in the Provincial Authorities

2.1 Business Processes

2.1.1 Description of Existing Business Processes

The graphic overview of the operational processes is given in the appendix 2

Business Processes between the Republic of Serbia - the Province and the Local Self-Government (G2G)

The actual business processes at this level are regulated by the Constitution and the relevant laws. According to the Constitution, the Republic of Serbia may delegate, by law, some of its original competences to the Autonomous Provinces; and the Autonomous Province may delegate, by Decision, some of their competencies to the local self-government units. By passing The Law on Establishment of Specific Competencies of the Autonomous Province¹², so called, Omnibus law, the Province was given competences for implementation of more than two hundred administration operations in more than twenty areas, which had been, till then, implemented by the

¹² Law on the Establishment of Specific Competencies of the Autonomous Province "Official Gazette of the RS", No. 6/02.

republic authorities i.e. national government. This Law also authorises transfer of constitutive rights over several hundreds of companies and public organisations, first of all in the area of health protection and education (organisations which execute public authorities and administration operations).

Business processes of implementation of the delegated responsibilities are based on the set system of accountability and specific competencies and limitations¹³ between the provider of public authorities (e.g. Ministry of Justice of the Republic of Serbia) and the public authorities' holder (e.g. Provincial Secretariat for Regulations, Administration and National Minorities).

Internal Business Processes at the Provincial Level (G2G)

Internal business processes at the provincial level could be defined through relations between and within provincial authorities: within the Assembly (working bodies and services); between the Assembly and the Executive Council; within the Executive Council (working bodies and a secretariat of the Executive Council); between the Executive Council and the provincial administrative authorities; between two provincial administrative authorities or several provincial administrative authorities; between provincial administrative authorities and provincial organisations, services, directions: within provincial authorities, i.e. between provincial employees.

Provincial Authorities - Citizens (G2C)

Operational processes in relations to citizens could be divided into processes of information provision and activities related to the citizens' requests for exercising certain rights.

Provincial Authorities – Business Entities (G2B)

The most frequent provincial authorities' services provided to these users are transfers of specific-purpose funds in the form of grants and subventions, through grant competitions and public procurements. Knowing the budget amount allocated annually to the business entities, two categories are clearly distinguished: business entities whose founder is the Province through its authorities, and other business entities (domestic and foreign).

2.1.2 Classification of Existing Business Processes

Classification of the existing business processes, presented in table 1, is made according to the areas of operation, by a combination of concrete operations and several areas in which the Province were given significant competencies.

Table 1.

Area of operation	Processes
A	Decision making in the area of the Provincial competencies
1.	Preparation of session materials (initiation of procedures; getting opinions; decision making) and holding the sessions of the Executive Council, Assembly, working bodies etc.
B	Provincial administration work (administrative procedures)
1.	Recording and filing of documents
2.	Conducting administrative procedures and decisions regarding administrative issues
3.	Insight in normative-legal acts of the Republic of Serbia
4.	Administrative practice of the provincial authorities (recording of all decisions made in administrative procedures)
5.	Collection of provincial taxes and service charges
6.	Monitoring the delivery and execution of the decision

¹³ Law on State Administration "Official Gazette of the RS", No. 79/05, establishes the right for monitoring of work of public authorities holders, provision of instructions, responsibilities for performance of operations, possibility of over taking operations, reports of the performed operations etc.

7.	Maintaining of files and records
C	Exams that are organised and run in the provincial administration
1.	Organisational support and holding of exams, provision of information, presentation of the educational texts etc.
D	Operations in the area of education in the Province
1.	Organisational support and implementation of the educational processes within the area of competence of the Province.
E	Operations in the field of culture in the Province
1.	Support in the field of culture that is within the competence of the Province
F	Operations in the field of educational politics of the Province
1.	Organisational support and implementation of the health protection within the competence of the Province
G	Operations in the area of social politics of the Province
1.	Organisational support and implementation of the social protection within the competence of the Province
H	Communication and public announcements
1.	Provincial public services
2.	Public services of the provincial administrative authorities
3.	Public procurements
4.	Public announcements
I	Management of the spatial resources
1.	Geo - spatial systems
J	Operations related to the EU accession
1.	Following competitions in all areas
K	Allocation of the financial assets
1.	Subventions and grants
L	Finances
1.	Planning and creation of the budget
2.	Budget bookkeeping
3.	Payments
4.	Bookkeeping
5.	Calculation of income
6.	Records of capital assets
7.	Control and monitoring
M	HR (human resources)
1.	Personal (personnel) record
2.	Human resources management
N	Technical processes
1.	Unified communicational infrastructure
2.	Managing use of the provincial facilities
3.	Managing use of the provincial car - pool
4.	Storage rooms - distribution and recording of material, equipment and spare parts
5.	Maintenance and security of the Executive Council and the Assembly buildings.
6.	Maintenance and security of the provincial facilities
7.	Preparation and publication of the printed material

O	ICT support
1.	Internal circulation of information
2.	Management of infrastructures and configurations
3.	Change management
4.	Management of capacities and ICT access
5.	Management of disaster recoveries
6.	Education and professional development of IT professionals
7.	Expenditure management

2.2 ORGANISATIONAL STRUCTURE OF THE PROVINCIAL AUTHORITIES

Graphic overview of the internal organisation structure of the provincial authorities is in the appendix 3.

2.2.1 The Assembly Structure

Despite the fact that this strategy is primarily related to the mentioned services of the Assembly, within the organisational structure we will also analyse organisation and the work of the Assembly which is defined by the Rules of Procedures of the Assembly of the Autonomous Province of Vojvodina¹⁴. The analysis will be given for better understanding of the operations that are realised by the services, and internal relations of the provincial authorities.

The Assembly that is comprised of 120 deputies makes decisions, within its competencies, on numerous issues important for the province¹⁵. The Assembly Services realises professional and other operations for the needs of the Assembly, committee, deputies and deputy groups¹⁶.

The Assembly is presided and represented by its president, there are also vice-presidents, and the Assembly secretary, who assist them in the sessions' preparation and chairing, manage the Assembly Services, takes care of the implementation of the Assembly's conclusions and performs other duties defined in the Rules of Procedures. A deputies' group can be formed in the Assembly. Permanent Assembly working bodies are committees, Ad Hoc working bodies – inquiring committee and commissions; the Assembly also forms a legal committee as an advisory-professional body, which studies and analyses legal issues important for the work of the provincial authorities.

2.2.2 The Executive Council Structure

Organisational structure of the Executive Council is defined by the decision on organisation and the method of work of the Executive Council of the Autonomous Province of Vojvodina¹⁷, as well as the Rules of Procedures of the Executive Council of the Autonomous Province of Vojvodina¹⁸.

¹⁴ Rules of Procedures of the APV "Official journal of the APV", No. 23/02 i 30/04.

¹⁵ Article 21, Statute of the APV – the Assembly adopts the Statute and decides on its amendments; makes decisions and general acts according to the Constitution, law and the Statute; makes regulations for implementation of law and other acts of the Republic of Serbia, whose implementation is entrusted to the Assembly; adopts the program of economic, scientific, technological, demographical, regional and social development; and the rural and agricultural development, according to the Republic of Serbia development plan, and establishes measures for their implementation; adopts budget and financial statement of the Province and performs other duties.

¹⁶ By the Decision on the Services of the Assembly of the Autonomous Province of Vojvodina " Official journal of the APV", No. 6/03, 17/05, organization, framework and work of the services are arranged.

¹⁷ The Decision on the organisation and method of work of the Executive Council of the APV "Official journal of the APV", No. 10/92, 12/92, 1/95, 3/02, 23/02, 17/03.

¹⁸ Rules of Procedures of the Executive Council of the APV "Official journal of the APV", No. 5/02, 2/03, 15/03 i 4/05.

Considering its competencies, the Executive Council is the executive government authority¹⁹ which is consisted of a president, vice-presidents, members of the Executive Council and seniors that manage the work of the provincial administrative authorities. The Executive Council and its members report to the Assembly.

Secretary of the Executive Council takes care of preparation of material necessary for the work of the Executive Council and its working bodies, assists the Executive Council president in job organisation and performs other duties.

The Executive Council permanent working bodies are organised as committees and commissions, Ad Hoc working bodies could be organised as well.

The Executive Council formed the followings as Independent Professional Services:

1. Secretariat of the Executive Council of the Autonomous Province of Vojvodina, for the purpose of professional, administrative, and administrative – technical operations for the need of the Executive Council, president, vice-presidents and the members of the Executive Council and working bodies;
2. Secretariat for Regional and Interregional Cooperation of the Executive Council of the Autonomous Province of Vojvodina, for the purpose of professional, organisational and administrative duties related to the participation of the Province in the regional and interregional cooperation, in accordance with the established politics of the Government of the Republic of Serbia;
3. Professional Services for realisation of the Integrated Regional Development Plan of the Autonomous Province of Vojvodina, established for the purpose of operations related to priorities of the Integrated Regional Development Plan of the Autonomous Province of Vojvodina for the period of 2004 to 2007;
4. The Office for European Affairs, for the purpose of following, analyses, studies and implementation of the European integration processes and development and strengthening of the institutional capacities of the Province, and with the objective of the Republic of Serbia's faster accession to main European political and economic trends;
5. Human Resources, for the purpose of professional operations related to human resources management of the provincial administrative authorities, organisations and services.

It is extremely important to mention Administrative and Technical Services Department of the provincial authorities, which execute professional, technical and other duties for the needs of these authorities, and for the other occasional users, and for the organisational unit of the services as well. Duties of the "Sector for Information Technologies Application, Information-Documentation and Printing operations" encompass operations related to development and implementation of the information systems in the provincial authorities. Graphic overview of the organisational structure of these Services is given in the appendix 4.

2.2.3 Structure of the Provincial Administrative Authorities

Provincial administration authorities execute administrative tasks at the provincial level and could be organised as provincial secretariats and as other administrative authorities. The Decision on Provincial Administration²⁰, establishes organisation, scope and competencies of the provincial administrative authorities, organisation of services; Public Reserves Directorate was formed and 16 provincial secretariats.

¹⁹ Article 34. Statute of the APV – The Executive Council performs laws and other general acts of the Republic of Serbia, when it is entrusted to do so, and adopts regulations for its implementation when it is entrusted with this; executes decisions and general acts of the Assembly of the APV and adopts acts for its implementation; adopts acts within its competencies; recommends development program, budget and financial statement of the Province and take measures for their implementation; recommends decisions and general acts and performs other operations.

²⁰ Decision on Provincial Administration "Official Journal of the APV", No. 21/02-edited text.

2.3 RELATION TO THE ONGOING PROJECTS

The Program "eVojvodina" is organised as a project and for the period from 2005 to 2007 five projects were defined, some of them have subprojects. The projects were created in cooperation with the Faculty of Technical Sciences and Faculty of Natural Sciences and Mathematics in Novi Sad, Provincial Secretariat for Science and Technological Development and Provincial Authorities Administrative and Technical Services. They were funded by Professional Services for realisation of the Integrated Regional Development Plan of the Autonomous Province of Vojvodina.

Future implementation of the projects of this program, which are related to eAdministration will be implemented as part of this strategy.

The overview of the basic projects and projects for realisation of the basic projects of the "eVojvodina" program, which are completed, is given in the appendix 6:

1) BASIC PROJECTS:

Politics and standards for ICT use in the provincial and municipal institutions of AP of Vojvodina; Specifications of information demands for intranet systems of the Assembly and the Executive Council of the AP of Vojvodina; Software architecture for eVojvodina for the eVojvodina program; Specifications of the information demands of the eVojvodina system's public services; Computer – communication infrastructure of eVojvodina; Basic project of the Provincial administration authorities network.

2) IMPLEMENTATION OF THE BASIC PROJECTS:

Establishment of the computer-communication infrastructure of eVojvodina; Creation of the computer-communication infrastructure of eVojvodina; Creation and implementation of the application for sessions of the Executive Council of the Autonomous Province of Vojvodina; Creation and implementation of the Portal system of the public services of the Autonomous Province of Vojvodina; Procurement and installation of the computer server equipment; Equipment of the Executive Council's hall with the portable computers; Services; Procurement of software CISCOWORKS Lan Management Solution and monitoring equipment for local computer network of the Assembly and the Executive Council of APV.

2.4 EXTERNAL INFORMATION ENVIRONMENT

2.4.1 Organisational and Physical Connection

In the Republic of Serbia, at the national level, there is not one authority that follows and coordinates the overall activities of the information society and eAdministration development. Operations of the state administration and professional operations in the area of development of information society at the national level are formally and legally under the competence of several authorities (Ministry for Telecommunication and Information Society, National Institute for Information Science and Internet and Joint Affairs Office of the National Authorities). Besides the authorities that are responsible for development of common components of the information society at the national level, other state authorities and organisations, entrusted with public authorities, are responsible for development and implementation of information systems (subsystems) for the operations within their competence (Ministry of the Internal Affairs, Ministry of Finances, and within the same framework – Tax Office and Custom Office, surveying information system, legislation information system etc.)

Significant progress presents the initiation of the eAdministration portal at the national level (www.euprava.gov.yu), as an internet access point towards the environment that enables interactive communication and cooperation of the state administration and citizens, economic entities, other institutions, and within the state administration itself. The portal provides access to the relevant information, through set of applications, cruisers and integration technologies. Based on the identified groups of users (citizens,

economic entities, visitors, state administration), this portal basically provides the most important data and information, as well as services to users that were available to them in the physical institution. At the local self government level the actual situation is very diverse: from existing portals with a number of public services, such as virtual registrar and/or electoral roll (e.g. Subotica - www.subotica.org.yu) to municipalities which do not even have a basic web presentation. Physical connection with the national and local level authorities does not exist. The Assembly and the Executive Council buildings are not physically connected to other provincial organisations and provincial administration authorities' organisational units outside of the seat (e.g. various provincial inspections in Subotica, Zrenjanin, Pančevo etc). At the provincial territory, there is an Academic computer network of Serbia –AMRES, which primarily connects scientific-research and higher education institutions, and provides internet connection to other research networks in Europe and the world, as well as various progressive IT services foremost for the use of researches and scientific workers.

2.4.2 Portals and Web Sites

Public services systems are not equalised at the national, provincial and municipal levels. A common characteristic is that most provincial authorities have web-presentations which provide the lowest level of public services (access to the information). Several provincial authorities provide opportunity for forms' downloading, and none of them provide full support service. Information kiosk is the application, situated at the Executive Council's main entrance, which provides basic information on the employees.

Portal of the Autonomous Province of Vojvodina's Public Services Systems has been realised. The server and the clients' side are based on the Open Source Technologies. The main task of this portal is the establishment of unified access point for all public services that are realised in the Province's public services systems. This way many public services currently existing, as well as the ones that are to be built, are integrated in one entity.

The implemented modules are:

- External access point (the system point of access of citizens and business entities);
- Internal access point (the system point of access of provincial employees);
- Module for definition of users' roles and access authorisation;
- Module for content update;
- Server for indexing and storage of the content;
- Module for the content access control;
- Module for multilingual support;
- Creation of the public services register.

2.4.3 ICT Standards

In the provincial authorities, the most up-to-date standards are applied in the following segments: communicational infrastructure, software solution for the portal of the public services systems of the Autonomous Province of Vojvodina, software solution for the Executive Council sessions, library information system, and establishment of the information resources from the GIS domain (digital maps and plans, distribution and exchange of geospatial data).

The European standard - [European Interoperability Framework](#) (EIF) has not been applied yet.

3 INTERNAL INFORMATION ENVIRONMENT

3.1 EXISTING INTERNAL INFORMATION SYSTEMS / APPLICATIONS

3.1.1 Internal Supply of Information

The Intranet site of Provincial authorities contains an **internal directory** of Provincial public servants located in the building of the Executive Council, with their general data, photographs and graphic illustration of indicators of offices in which they work.

Users of the Intranet of Provincial authorities, public servants are also enabled access to **help portal** applications (users can ask administrators questions, report malfunctions and use the existing knowledge base) and a **notice board** (informing of employees by putting up important news from various categories: information falling within the scope of work of a housing commission, restaurant, technical support service, dispensary etc.). A unique documents archive in electronic form does not exist.

Provincial authorities mostly use data base management systems MySQL and Microsoft SQL Server. An application for observing sessions of the Executive Council is based on document management and uses a data base holding information created during the work of the Executive Council. A data base management system is called Microsoft SQL Server.

Business applications are implemented for various purposes (accounting department, human resources department, filing and records office etc.), but those applications are not implemented with state-of-the-art technologies (typically-Clipper and Clarion applications), nor are they interconnected. Existing systems, i.e. applications minimally support or do not support at all business processes.

3.1.1.1 Applications and Systems

Software System of the Treasury

The Provincial Secretariat of Finance developed an integral software system (programme package) for the purpose of the Treasury's work, which contains: preparation of payment orders before Provincial administrative authorities and other direct budget beneficiaries (27 entities), processing of those orders in the Provincial Secretariat of Finance- Department of the Treasury and Realisation of Payment Orders by E-Mail of the Ministry of Finance of the Republic of Serbia, Treasury Administration. This software system is a client-server application developed in a Delphi programme language and it uses an InterBase base. This system represents a package containing four applications: preparation and monitoring of payment orders, travel expense statement, personal records (partially used), payroll accounts (in the process of development).

Application for Payroll Accounts

The current application for payroll accounts for the employees of Provincial authorities was designed in Clarion v.3.0 programme and it has been used for years. Since the beginning of 2007, it has had a client-server architecture and it satisfies all intended purposes.

Application for Budget Accounting

The current programme for managing budget accounting was designed more than 15 years ago and it was written in Cobol programme language. The application is stand-alone. This programme satisfies demands of budget accounting management only minimally, according to the regulations in force. Therefore, for the purpose of obtaining the major part of report, as well as for processing of a portion of data, supporting tables and overviews are used which are created by means of MS Access and Excel programmes.

Application for Material and Financial Accounting

Material and financial accounting is performed by means of the programme designed more than 15 years ago and written in Clipper using Clipper tools. It is a network application and it generally satisfies its intended purposes.

Application for Fixed Asset Record-Keeping

Record-keeping of fixed assets is performed by means of the programme designed more than 15 years ago and written in Clipper using Clipper tools. This is a stand-alone application and it generally satisfies its intended purposes.

Application for Filing and Records Office

The Department for Administrative and Technical Services of Provincial authorities, uses two application softwares for monitoring, record-keeping and movement of cases which are used in the work of the Filing and Records Office of Provincial authorities. The outdated software is still used since the existing data could not be used for creation of a new base. The new software dates back to 2004, it has no web-interface, it was designed in LINUX Platform and it uses MySQL database. The application needs to be improved.

BISIS Library Software System

The library of the Executive Council of the AP Vojvodina uses the BISIS software system thereby providing a complete software support for the library activities and integration into the library network of the Province. That is a software system for cataloging library materials, monograph and serial publications and articles with the possibility of searching records through the Internet. Since public libraries (book catalogues, search tools) represent one of the twelve citizens' services, this software also enables the specialised library of the Executive Council to be one of the first activated services for citizens and other interested entities.

Personal Record-Keeping Programme

Personal record-keeping programme was written in Clarion programme language and it was transferred into the network environment. It needs to be improved. At the moment, the Department for Administrative and Technical Services of Provincial authorities prepares a modern application version for personal record-keeping, labour market and competitions.

Employee Attendance Record Programme

The present employee attendance record programme for the employees of Provincial authorities was designed in C++ programme language, in the beginning of 2005. Application is stand-alone and it uses MySQL database for recording arrivals and departures of the employees by using RF identification cards.

Application for the Record-Keeping of the Activities of the Printing-Office

Upon the request of Provincial authorities, application for the record-keeping of the activities of the printing office was designed in Clarion programme language. The application is in Windows environment, it is stand-alone, it satisfies current needs, but it needs to be improved.

Applications for Purposes of Holiday Resort in Igalo

Two applications are used (warehouse and restaurant business activities with standards of expenditures; guest registering and flow, their arrangement by rooms, price accounts and laundry-room services). Those applications are realised as client-server in Clipper programme language and in DOS environment in 2001. They are outdated and need to be improved.

Applications for Public Procurements

The Public Procurement Department of the Department for Administrative and Technical Services of Provincial authorities, uses three applications: for entering due-for -payment accounts in relation to public procurements; for record-keeping of inventory and storage activities and catering industry (record-keeping of inventory, storage activities and restaurant). Applications have a client-server architecture, use SQL database and they are realised in VisualFox programme language in 2005. They satisfy current needs, but they need to be improved.

Application for Registering Computer Equipment Spare Parts

Application has a client-server architecture, it is multi-user and it was realised in 2007. It is developed in Java programme tool and it uses MySQL database. Application satisfies current needs, but it needs to include other spare parts as well within the Department for Administrative and Technical Services of Provincial authorities.

Software System of Legal Regulations and Judicial Practice

Provincial authorities use various software systems for legal regulations and judicial practice (Paragraph; Ing-pro; IPC-financial regulations; Elitsoft). Lack of coordinated activity regarding this issue causes first of all problems in updating data and systematic support to users, allocation of major budgetary resources on the part of some authorities, but also incomplete records of users of particular systems which are managed by the Department for Administrative and Technical Services of Provincial authorities. At the moment, only Elitsoft is provided with updating from the server, instead of the Internet, thereby increasing speed and safety.

Application for Observing Sessions of the Executive Council

Application for observing sessions represents a pilot project for DMS and Workflow, which should be used for observing sessions of the Executive Council, but at the same time it should be a basis for improvement and extension of the system for management of documents for all users in the Executive Council. The application provides designing of documents which are essential for sessions of the Executive Council in electronic form, their studying, exchanging, searching and archiving. The system is a Document management with a Workflow system, which provides defining of types of business processes.

It also enables searching of documents and electronic observation of the session of the Executive Council, with a possibility of active participation of members of the Executive Council in creation of final minutes of the meeting, entering of personal notes by means of the web-interface for all participants of the session, with a possibility that other participants have an insight into the content of those minutes and possibly use them for creation of texts of conclusions. The application is complemented with the module for voting.

Presently, this system is being tested and its official use depends on the consensus and good will of Provincial officials.

3.1.1.2 Business Processes Supported by Systems i.e. Applications

Starting from the field of work, it is illustrated which systems i.e. applications support existing business processes, including conclusions. (Table 2).

Table 2.

	Processes	Current systems/ applications	Conclusions
A	Adoption of decisions within the scope of competences of the Province		
1.	Preparation of materials for sessions (initiating proceedings; requiring opinions; adopting decisions) and holding sessions of the Executive Council, Assembly, working bodies etc.	eDocumentus application for preparation of materials and holding sessions IV (system based on document management and workflow)	Completely adequate; introduction of eDocumentus system in the Executive Council is in progress.
B	Work of Provincial administration (administrative proceedings)		
1.	Record-keeping and archiving of cases	Two application softwares for controlling, record-keeping and movement of cases (Filing and Records Office)	They do not satisfy needs; it is necessary to conduct reengineering and migration to modern software platform.

2.	Conducting administrative proceedings and resolving administrative issues	There are electronic records from various fields (databases)	They do not satisfy needs; they do not cover all fields; it is necessary to conduct reengineering and migration to modern software platform.
3.	Insight into normative -legal acts of the Republic of Serbia	There are various software systems (Paragraf; Ing-pro; IPC-financial regulations; Elitsoft)	Commercial programmes do not satisfy needs.
4.	Administrative practice of Provincial authorities (records of all decisions passed in administrative proceedings)	No supporting applications	
5.	Charging Provincial taxes and fees for services	No supporting applications	
6.	Controlling submission and passing of decisions	No supporting applications	
7.	Record-keeping	Outdated applications	It is necessary to conduct reengineering and migration to modern software platform and integrate it into the system.

C	Exams which are organised and held in Provincial administration		
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1.	Support to organisation and holding of exams, providing information, presentation of teaching matters etc.	No supporting applications	
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D	Affairs from the field of education in the Province		
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1.	Support to organisation and conducting of education process falling within the scope of competence of the Province	No supporting applications	
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E	Affairs from the field of culture in the Province		
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1.	Support in the field of culture falling within the scope of competence of the Province	No supporting applications	
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F	Affairs from the field of health care policy in the Province		
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1.	Support to organisation and pursuing of health care policy falling within the scope of competence of the Province	No supporting applications	
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G	Affairs from the field of social policy in the Province		
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1.	Support to organisation and conducting of social protection falling within the scope of competence of the Province	No supporting applications	
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H	Communication and informing of the general public		
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1.	Provincial public services	Portal of the system of public services of APV	Application provides infrastructure for support to public services; public service is implemented on the level of accessibility of information; it needs to be upgraded.
		BISIS library software system	It needs to be promoted.
2.	Public services of Provincial administrative authorities	Web presentations of Provincial authorities	Provided level of accessibility of information for specific fields and duties of Provincial authorities; they need to be standardised and upgraded.
3.	Public procurements	Outdated applications	It is necessary to conduct reengineering and migration to modern software platform and integrate it into the system.
4.	Informing the general public	Info kiosk	It needs to be upgraded.

I	Spatial resources management		
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1.	Geospatial systems	Partial systems (specific areas of application and part of the territory of Vojvodina)	Other areas of application should be covered as well and the whole territory of the Province.
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J	Affairs related to accession to the EU		
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1.	Monitoring competitions from this field	No supporting applications	
K Appropriation of financial resources			
1.	Subventions and donations	No supporting applications	
L Financial resources			
1.	Planning and preparation of the budget	Modules exist	It is necessary to conduct reengineering and migration to modern software platform and integrate it into the system.
2.	Budgetary book-keeping	Modules exist	It is necessary to conduct reengineering and migration to modern software platform and integrate it into the system.
3.	Payments	Partial system in the process of development	It is necessary to conduct reengineering and migration to modern software platform and integrate it into the system.
4.	Book-keeping	Modules exist	It is necessary to conduct reengineering and migration to modern software platform and integrate it into the system.
5.	Payroll account	Partial system in the process of development	It is necessary to upgrade it by additional modules and integrate it into the system.
6.	Record-keeping of assets	No supporting applications	
7.	Monitoring and supervision	Outdated applications	It is necessary to conduct reengineering and migration to modern software platform and integrate it into the system.
M HR			
1.	Personal (human resources) records	Outdated applications . Modern application is in the process of preparation	It is necessary to upgrade it and integrate it into the HR subsystems.
2.	Human resources management	No supporting applications	
N Technical processes			
1.	Unique communication infrastructure	No supporting applications	
2.	Managing utilisation of facilities of the Province	No supporting applications	
3.	Managing utilisation of motor pool of the Province	No supporting applications	
4.	Warehouses- distribution and record-keeping of materials, equipment and spare parts	There is an application for record-keeping of spare parts (data entry and ordering)	It is necessary to conduct reengineering and migration to modern software platform and integrate it into the system.
5.	Maintenance and security of buildings of the Executive Council and Assembly	Employee Attendance Record Programme	At the moment, application satisfies its intended purposes; it is necessary to integrate it with other subsystems.
6.	Maintenance and security of facilities of the Province	No supporting applications	
7.	Preparation and publication of printed material	There is an application for record-keeping of work orders and duties performed upon requests	It is necessary to conduct reengineering and migration to modern software platform and integrate it into the system.
O ICT support			
1.	Internal informing	Help portal, notice board, internal directory	It needs upgrading, complementing and promotion.
2.	Infrastructure and configuration management	Electronic on-line register of all installed softwares and used hardware components	
3.	Change management	No supporting application	

4.	Capacity and ICT accessibility management	No supporting application	
5.	Disaster recovery management	No supporting application	
6.	Education and additional training of IT professionals	No supporting application	
7.	Cost management	No supporting application	

3.1.2 ICT Ifrastructure

3.1.2.1 Existing Local Computer Network of Provincial Authorities

There is a local computer network of Provincial authorities, which completely provides network and communication conditions in facilities of the Executive Council and Assembly, for implementation of the integrated information system of administrative authorities of the AP Vojvodina. The network was set up in the end of 2006 based on the project²¹. The computer network of facilities of the Executive Council and Assembly, was connected to the Internet by means of permanent connections through two providers: Telekom Srbija AD (link capacity-2Mbps) and Academic Computer Network of Serbia-AMRES (link capacity-2Mbps). The local computer network provides services of dial-in access to authorised users and provides standard user and supplementary Internet services. Connection to dislocated parts (other Provincial organisations and organisational units of Provincial administrative authorities outside its seat) has not been provided yet. Graphic illustration of the local computer network is presented in Appendix 5.

3.1.2.2 Computer Infrastructure- Servers and Desktop Computers

At the moment, Provincial administration authorities have around 700 computers, 100 portable computers and 350 printers. Out of the total number of computers, number of server configurations within Provincial authorities, as well as their purpose are not clearly specified. For the purpose of centralisation of general services of all Provincial authorities, they set up a central server farm with six "brand name" servers of high performances which should support present demands for information logistics of the Executive Council and Assembly.

Servers have installed all services required for access to the Internet, using e-mail, anti-virus protection, security, flow of documents, storing of data etc. Network infrastructure for computers in the Assembly and Executive Council provides: possibility of remote access from home (at the moment, it is provided for a limited number of users-up to five); non-stop access to the Internet for every user; active domains on two servers for working within network environment; PROXY server through which complete web traffic is going; DHCP server for the purpose of dynamic provision of IP addresses for computers within the network; WSUS system which enables automatic safety update of operative system and other softwares in all computers within the network; anti-virus spam protection (licenced anti-virus software with automatic centralised installation); remote diagnostics of instruments for permanent power supply; web-hosting for purposes of web-presentations of Provincial authorities with IIS6 (Internet Information Server) supported for PHP 5 and MySQL 5 base and FTP server as a possibility of additional service for web-presentations.

Computers from the previous period are not "brand-name", by different producers, with different configuration and properties, which also refers for portable computers. In order to overcome this, for the purpose of future procurements, there are typical configurations which are stipulated for servers, as well as for portable computers and

²¹ Project «Computer and Communication Infrastructure of e Vojvodina»

developing and standard personal computers and typical configurations which should be harmonised with changes and developments in computer market. Portable computers are provided with CA and radius certificates for the purpose of reliable and protected use of wireless access to the local computer network.

3.1.2.3 Softwares

Server Operating System

For the purpose of official support to Windows operating systems, broadband property, increased number of experts dealing with this operating system, as well as commitment of competent Republic authorities and contracts with Microsoft corporation concluded thereby and easier use and uniformity with operating systems, Windows operating systems are used with desktop computers and servers in the Assembly and Executive Council.

Database Management System (DBMS)

Provincial authorities mostly use MySQL and Microsoft SQL Server databases. New applications (portal of the system of public services of the APV, application for monitoring sessions of the Executive Council and BISIS Library Software System) are independent from DBMS, i.e. they support work on different DBMSes without changing original application code.

Application Servers and CMS Systems

For development of portal of the public service system, application for monitoring of sessions of the Executive Council and application for registering spare parts for computer equipment, J2EE technology is used and it is based on Java programme language. The intranet system of Provincial authorities (internal directory, help portal, notice board), are based on PHP/MySQL platform. CMS systems are used with help portals and existing Provincial web-portals.

Desktop Computers Softwares

Microsoft Office is used out of all office applications. This package contains most of required tools for conducting everyday office duties, as well as for preparation of documents for internal use.

On specific number of work stations, Adobe Acrobat Professional software is used which enables conversion of documents into PDF formats.

Until now, they used Outlook Express for electronic mail with desktop computers, as a rule and as an implicit e-mail client application.

MS Internet Explorer is used for access to the Internet with desktop computers and it comes reinstalled with every Windows version.

E- mail

Every computer has a created electronic work order. Every user is entitled a single e-mail address (first name.last name@vojvodina.sr.gov.yu). Access to e-mail is constant. Sent and received items are located within the personal computer or server. Typical standards have been set up regarding limitations in sending of files of specific type, limitations of the number of sent synchronous circular messages, size of the mail box and size of messages as files.

GIS Equipment and Applications

Project *Geological Information Subsystem of the Autonomous Province of Vojvodina* within geological information system of Serbia- GeoIISS was completed in 2006 and in accordance with the project objectives. What is happening at the moment is procurement of adequate hardware and software.

Ortophoto Plans and Digital Terrain Model is specified and tested technological procedure of creation of ortophoto plans and digital terrain model. They also created ortophoto plans and digital terrain model for the area of Fruška gora (imageries from May 2004, scale 1: 5000) and Irig settlement (imageries from May 2004, scale 1:1000).

Cartographic Basis of the Purpose of Agricultural Land is specified and tested technological procedure for monitoring changes of the purpose of land in accordance with CORINE recommendations. They also created digital maps of the purpose of agricultural land by classes of agricultural land (territory of the AP Vojvodina of the total surface area of 10000 km², imageries from 2000, ETM sensor+on Landsat- 7 satellite; 11 classes detected).

Agricultural Land Database – a prototype of the web-based application of the agricultural land base and defined model of the system for provision of geospatially-oriented services aimed at agricultural production management.

3.1.3 Data Security and Protection

Implemented security mechanisms include data backup, protection on the network level, mechanisms of authentication and authorisation, virus protection, operating systems up-dating. All data from the server are saved and backup copies are created. They formed a file server within which they created folders for every Provincial body for common official documents. In case a user chooses that his electronic mail (sent and received) is placed within the server, those data are also included by the system of backing up. A user is personally responsible for data from his personal computer, but there is a rule of dividing discs within personal computers into two logical partitions (systematic partition and data and backup-data partititon), thereby enabling establishing of backup copies mechanisms even within personal computers. On the network level, security is provided by hardware and software components integrated into the modern active network communication equipment. Licenced LMS software (Lan Management Solution-Ciscoverks) enables monitoring and backup of complete active equipment. Authentication and authorisation is enabled by means of the system of rights and pivilidges, as well as by using CA and radius server certificate for safer use of portable computers in wireless environment which is set up in premises of the Assembly and Executive Council.

Security policy is regulated by special rulebooks.

3.1.4 Role and Position of ICT and Human Resources

As far as ICT is concerned, recent method of work of Provincial administrative authorities was strictly decentralised, without human resources coordination and common IT development. Completely decentralised ICT implementation represents the environment which does not require too much effort invested in coordination and synchronisation of experts, but a negative effect of that is an unbalanced infrastructure, different development and improvement visions, unharmonised approach towards third parties etc.

By transferring to a single integrated information system, centralisation has begun, which enabled the highest level of controlled sustainability and development, harmonisation and expert team work. The abovementioned affairs are presently performed by an internal organisational unit of the Administrative and Technical Services Department, Sector for Information Technology Application, Information and Documentation Affairs and Printing Office, which has only 12 employees, performing their duties and having different professional qualifications. A small number of employees requires extensive efforts of existing experts.

As a part of eVojvodina programme, administrators have udergone adequate trainings thereby improving and standardising the level of knowledge which is necessary for maintaining computer network, application servers. Within the Administrative and Technical Services Department, IT professionals have undergone additional trainings for

seven specialised courses (PHP, ASP, MySQL, HTML, Microsoft), as well as trainings contracted during every procurement of equipment and softwares. Apart from the abovementioned, programmes of permanent education, for the purpose of basic or new knowledge and improvement of acquired knowledge concerning ICT field, do not exist, but they are the matter of individual activities in Provincial authorities.

By analysing acts on internal organisation and systematisation of job positions it has been determined that more than half of Provincial authorities do not include computer literacy as one of the preconditions for that job position. Also, there are very few envisaged job positions for IT professionals which, among other things, indicates the fact that there is no awareness of the necessity of introduction of ICT in the work of Provincial authorities. Provincial civil servants, as human resources, can be divided into IT professionals whose job is provision of technical support to the system of eAdministration and its users.

IT professionals have different levels of education, different education profiles, different levels of know-how who, in the absence of joint projects of Provincial authorities and coordinated activities for introduction of ICT, did not develop closer connection nor did they establish an adequate level of cooperation and exchange of professional experience and know-how. Out of the total number of employees, IT professionals make out only 3%. Age structure of human resources is above the average in comparison with standards in this field. According to the data on age structure of Provincial administrative authorities, around 60% of Provincial civil servants are aged between 41 and 60²². Employees' education structure of Provincial authorities is generally satisfactory, which is not the case with the education profile for IT professionals.

Users of the e-administration system have different education profile, without adequate knowledge and education (no one has ECDL). Since human resources development in this field have not been approached systematically and professionally until now, information culture and users discipline is at the low level, while the awareness of the need for intercommunication by e-mail is not developed enough.

²² Information on the structure of Provincial administrative authorities, organisations and services, number: 101-021-00001/2006 – age structure between 41 and 50 – 32.41%; between 51 and 60 – 27.06%, between 31 and 40 – 26.34%, up to 30 years of age – 12.65% and older than 61 years of age around 1% (0.82%).

4 SWOT ANALYSIS

Submitted SWOT analysis (table 3) includes evaluation of strengths, weaknesses, opportunities and threats by the following key areas: business processes; ICT infrastructure (network and computer infrastructure; applications; data bases); human resources and e-administration structure (competences for e-administration).

Table 3

Strengths	Weaknesses	Opportunities	Threats
Business Processes			
<ul style="list-style-type: none"> - processes at the level Provincial authorities are stipulated by regulations within the scope of competences of Provincial authorities; - there are important competences of the Executive Council for coordination, monitoring and guidance of the work of Provincial administrative authorities. 	<ul style="list-style-type: none"> - slow business processes; - processes are accompanied by bad coordination and insufficient communication among authorities; - duplication of processes – different Provincial authorities have similar competences; - critical points which decelerate business processes are not identified; - there is no standardisation of business processes or documents; - internal resistance to standardisation of business processes and documents; - majority of processes is not ICT supported and they are not interconnected; - great expenses of business processes. 	<ul style="list-style-type: none"> - creation of transparent processes, which are supported by ICT and interconnected; - cooperation with Republic and local government and connection of processes at all levels of administration; - cooperation with developed EU countries for the purpose of exchange of knowledge and experience; - existing contemporary methods of modernisation of business processes; - acceleration of the performance of business processes; - reduction of the costs of business activities of Provincial authorities; - standardisation of business processes and documents. 	<ul style="list-style-type: none"> - change of leaders of particular processes due to changes in organisational structure of Provincial administrative authorities; - insufficient cooperation with Republic and local government.
ICT Infrastructure			
<ul style="list-style-type: none"> - existing local computer network of Provincial authorities; - provided access to the Internet; - good quality computer and "Brand name" network equipment from the most eminent international producers; - existing application for sessions of the Executive Council with elements of the system for document management and system workflow; - existing Provincial portal of e-administration; - existing complete library application; - good quality, contemporary organised data bases from the field of spatial resources (GIS) for the part of the territory of the Province; - existing business data may be used for creation of new data bases. 	<ul style="list-style-type: none"> - insufficiently developed ICT infrastructure in the country; - lack of Provincial regulations on security, protection and standardisation in fields of ICT infrastructure; - inadequate organisational structure for ICT infrastructure management; - there is no connection between the buildings of the Executive Council and Provincial organisations, funds and other institutions - infrastructure consists of many amortised computers; - inadequate conditions in which network and server equipment are installed and working; - applications and data bases are mainly developed by means of different tools and outdated and it is difficult to integrate them into the system; - a small number of application has web-interface; - data within business data bases are neither complete nor updated; - bases are not interconnected; - bases are not accessible to external users; - there is no appropriate software support for utilisation of data bases. 	<ul style="list-style-type: none"> - development of software based on the open code initiative; - utilisation of existing good quality solutions from the field of data base management, in particular solutions based on the open code; - forming a unique data base model ; - making use of experiences of developed EU countries in the field of ICT application for e-administration; - cooperation with ICT companies, academic institutions and research centres; - utilisation of human resources from the competent development institutions in ICT field. 	<ul style="list-style-type: none"> - development of necessary communication infrastructure requires substantial financial investments; - development of the adequate software support for e-administration is a long-term process which requires substantial financial investments; - failure to adopt Republic laws on security, protection and standardisation in the field of ICT infrastructure; - reduction of competences of Provincial administration for provision of public services.

Strengths	Weaknesses	Opportunities	Threats
Human Resources			
<ul style="list-style-type: none"> - significantly rejuvenated human resources in Provincial authorities; - increased number of Provincial civil servants with university degrees and foreign language knowledge. 	<ul style="list-style-type: none"> - no single system of training and professional training ; - insufficient number of IT professionals with higher education; - lack of coordination and cooperation among IT professionals; - inadequate age and education structure of IT professionals; - managers' underdeveloped awareness of the need for introduction of ICT in the work of Provincial authorities; - managers and users have minimal knowledge of ICT; - underdeveloped awareness of the need for communicating by e-mail; - underdeveloped information culture and discipline of users; - difficult adaptation to changes in methods of work. 	<ul style="list-style-type: none"> - employing IT professionals with higher education; - forming association of IT professionals at the level of Provincial authorities and networking with respective associations in the country and neighbouring countries; - Provincial regulations and acts on internal organisation and systematisation of all work posts should include a condition pertaining to computer literacy (ECDL); - possibility of establishing ECDL test centres; - introduction of e-learning system; - acquiring necessary knowledge and skills through ECDL test centre and e-learning system. 	<ul style="list-style-type: none"> - highly educated IT professionals are not interested for working in Provincial authorities; - employment, training and development of human resources require substantial financial investments; - resistance of managers and users to acquiring ICT knowledge and skills.
e-Administration Structure			
<ul style="list-style-type: none"> - existing Strategy of Reform and Development of Provincial administration; - existing regulations for establishing organisation and competences of Provincial authorities; - existing analysis of organisation of competences for e-administration in EU countries (basics for strategy from e-Vojvodina). 	<ul style="list-style-type: none"> - organisational structure and competences for e-administration are not adequately and precisely established; - resistance to organisational changes. 	<ul style="list-style-type: none"> - acquiring and adjusting the model of competence for e-administration from developed EU; - development of the model of competence for e-government in cooperation with the Republic and local administration; - adequate organisational infrastructure for e-administration (ITIL recommendations). 	<ul style="list-style-type: none"> - decision-makers do not have sufficiently developed awareness of necessity and significance of application of ICT within administration; - reduction of competences of the Province.

4.1 SUMMARY OF THE SWOT ANALYSIS RESULTS

By analysing SWOT analysis results, several conclusions can be drawn which are common for all areas for which the analysis was conducted.

Political will for application of ICT in reform and development of Provincial administration was expressed by adoption of the Strategy of Reform and Development of Provincial Administration, but despite of that Provincial leaders (decision-makers) do not have sufficiently developed awareness of the necessity and significance of application of ICT in the work of Provincial administration, nor the adequate ICT knowledge. This kind of support of Provincial leaders is necessary for efficient implementation of e-administration within Provincial authorities.

As far as normative and legal frameworks are concerned, the basic problem is the lack of adequate legal frameworks and by-laws at the Republic level (outdated or incomplete solutions), i.e. complete absence of Provincial regulations stipulating issues which are important for introduction of e-administration within Provincial authorities. In areas which are important for introduction of e-administration in the Province, there are no unique organisational frameworks, nor the adequate cooperation with the Republic and local administration. The abovementioned also implies a number of problems in providing adequate technical and technological resources (network, computer infrastructure, applications, data bases).

Significant advantages in all areas are the result of previous activities in application of ICT at the level of the Province, through realisation of "e-Vojvodina" programme and activities of respective Provincial administrative authorities and the Administrative and Technical Services Department. More efficient application of ICT would significantly increase the efficiency of administrative and other business processes.

Eventhough human resources of Provincial authorities are significantly rejuvenated and the number of Provincial civil servants with higher education and knowledge of foreign language increased, problems concerning human resources mainly refer to the lack of an integrated system of training and professional upgrading, thereby providing high-level qualifications or skills of human resources pertaining to use of ICT, development of information culture and discipline and reducing resistance to changes. It is necessary to improve information knowledge and skills of users, raise awareness and responsibility concerning information security, thereby eliminating negative factors of poor information skills. Special problem is the insufficient number of highly qualified IT professionals employed within Provincial authorities.

5 VISION

Provincial authorities will attempt to improve development of Provincial e-administration in directions which are determined by the following factors:

- satisfying needs of citizens and economic entities;
- reduction of administrative costs;
- innovative solutions;
- new models of businesses;
- cooperation with other levels of administration in the Republic of Serbia;
- implementation of good practice;
- designing knowledge basis;
- rationalisation of internal businesses;
- enabling all stake holders for the use of e-administration;
- standardisation, adequate e-administration management and interoperability.

Apart from that, development of e-administration should be in compliance with EU criteria. Development of the e-administration system in the Province should serve as an incentive for development of IT industry at Provincial, Republic and regional level.

Understanding e-administration this way would not only provide support to existing Provincial administration, but it would represent an important factor of its overall sustainable development.

VISION
of Provincial eAdministration until 2013

Provision of preconditions within Provincial authorities for their internal electronic business and cooperation with other levels of administration in the Republic of Serbia, as well as establishing and delivery of electronic administrative services and information for citizens and economic entities through the Internet.

5.1 OBJECTIVES

The objective is to build a system of ICT support to functions of the Assembly, Executive Council and Provincial authorities for the purpose of providing the high-level quality of work of those authorities.

For the purpose of achieving the vision, the following things should be done:

- standardisation of business processes of Provincial authorities (as a basis for future development of information system);
- standardisation of documents used by Provincial administration;
- establishing and forming of organisational structure for the Strategy management;
- establishing organisational infrastructure for support to e-administration within Provincial authorities (by introducing changes to the existing internal organisation of Administrative and Technical Services Department, by establishing a basic internal unit);
- increasing the level of integration of existing systems and introduction of new integrated systems;
- establishing cooperation with the Republic and local administration;
- implementation of methodological approach and good practice in development of e-administration defined by the EU for its members (IT implementation technologies; IT security methodologies; IT standards; IT project management; interoperability; e-signature; ITIL; e-identification);
- implementing the existing standards in domain of security of information systems and data;
- promoting ICT application and increasing information knowledge and skills of users (ECDL);
- providing support to multilingualism.

Basic principles for development of solutions of e-administration:

- openness;
- interoperability;
- cost-effectiveness.

According to these principles solutions will be applied which are based on open standards and open code, which is the recommendation given in basic projects of the programme "e-Vojvodina".

Starting from the field of businesses, Table 4 gives time schedule of activities which will improve the existing business processes in accordance with the vision objective. The time schedule includes the following periods: short-term (2007), mid-term (2008-2009) and long-term (2010-2013). *BO indicates Back-Office functions, while FO indicates Front-Office functions.

Table 4

Processes	2007	2008-2009	2010-2013
A	Decision-making falling within the scope of competences of the Province		

1.	Preparation of materials for sessions	1. introduction of the eDocumentus system in the Executive Council *BO	2. introduction of the eDocumentus system in the Assembly *BO	3. eSessions *BO
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B Work of Provincial administration (administrative proceedings)				
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1.	Record-keeping and archiving of cases		1. analysis of the situation, specification of requests and systems for e-Archive; 2. designing software «Digitalisation and archiving of documents» for e-Archive.	3. introduction of the e-Archive system*BO
			4. analysis of the situation, specification of requests of the E-Filing and Records Office system; 5. designing software for e-Filing and Records Office or selection of appropriate softwares existing in the market- 1 st phase.	6. designing software for e-Filing and Records Office or selection of appropriate softwares existing in the market- 2 nd phase 7. introduction of the e-Filing and Records Office system *BO
II.	Conducting administrative proceedings and settlements of administrative cases		1. analysis of the situation, specification of requests and systems for e-Proceedings; 2. designing software for e-Proceedings or selection of appropriate softwares existing in the market- 1 st phase.	3. designing software for e-Proceedings or selection of appropriate softwares existing in the market- 2 nd phase; 4. introduction of the e-Proceedings system *FO
		5. standardisation of processes and documents-1 st phase	6. standardisation of processes and documents-2 nd phase; 7. analysis of the situation, specification of requests and systems for e-Work with Customers.	8. designing software or selection of appropriate softwares existing in the market and introduction of the e-Work with Customers system *FO
		9. on line information on administrative proceedings (QW)		
3.	Insight into normative and legal acts of the Republic of Serbia		1. connection to the service of legal regulations and judicial practice (Ministry of Justice of the Republic of Serbia)*FO	
4.	Administrative practice of Provincial authorities		1. analysis of the situation, specification of requests and systems for e-Administrative practice of the APV ; 2. designing software for e-Administrative practice of the APV or selection of appropriate softwares existing in the market- 1 st phase.	3. designing software for e-Administrative practice of the APV or selection of appropriate softwares existing in the market- 2 nd phase; 4. introduction of the e-Administrative practice of the APV system *BO
5.	Charging Provincial taxes and fees for services		1. analysis of the situation, specification of requests and systems for e-Charging; 2. designing software for e-Charging or selection of appropriate softwares existing in the market- 1 st phase.	3. designing software for e-Charging or selection of appropriate softwares existing in the market-2 nd phase; 4. introduction of the e-Charging system *BO
6.	Monitoring submission and enforcement of decisions		1. analysis of the situation, specification of requests and systems for e-Decisions.	2. designing software for e-Decisions or selection of appropriate softwares existing in the market; 3. introduction of the e-Decisions system *BO, FO
7.	Book-keeping and records	1. analysis of the situation, specification of requests and systems	2. designing software or selection of appropriate softwares existing in the market *BO, FO	3. introduction of the integrated system of Provincial administrative records*BO, FO

C Exams organised and taken in Provincial administration				
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1.	Support to organisation and	1. analysis of the situation, specification of requests and	3. designing software or selection of appropriate	4. introduction of LM system; 5. introduction of eLearning
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	taking of exams, providing information, presentation of curricula etc.	systems; 2.(on line) information on exams (QW).	softwares existing in the market *BO, FO	system. *BO, FO
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D Affairs from the field of education in the Province

1.	Support to organisation and implementation of education process falling within the scope of competences of the Province	1. (on line) information (QW).	2. designing software for e-Enrollment at universities or selection of appropriate softwares existing in the market *BO, FO;	
			3. analysis of the situation, specification of requests and systems for information systems of education falling within the scope of competences of the Province; 4. designing software for information systems of education falling within the scope of competences of the Province or selection of appropriate softwares existing in the market -1 st phase *BO, FO	5. designing software for information systems of education falling within the scope of competences of the Province or selection of appropriate softwares existing in the market -2 nd phase *BO, FO 6. introduction of e-Education system *BO, FO

E Affairs from the field of culture in the Province

1.	Support to the field of culture falling within the scope of competence of the Province	1. (on line) information (QW).	2. analysis of the situation, specification of requests and systems; 3. designing software for information systems of culture falling within the scope of competences of the Province or selection of appropriate softwares existing in the market -1 st phase *BO, FO	4. designing software for information systems of culture falling within the scope of competences of the Province or selection of appropriate softwares existing in the market -2 nd phase *BO, FO
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F Affairs from the field of health care policy in the Province

1.	Support to organisation and implementation of health care falling within the scope of competences of the Province	1. (on line) information (QW).	2. analysis of the situation, specification of requests and systems; 3. designing software for information systems of health care falling within the scope of competences of the Province or selection of appropriate softwares existing in the market -1 st phase *BO, FO	4. designing software for information systems of health care falling within the scope of competences of the Province or selection of appropriate softwares existing in the market -2 nd phase *BO, FO 5. introduction of e-Health Care system *BO, FO
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G Affairs from the field of social policy in the Province

1.	Support to organisation and implementation of social care falling within the scope of competences of the Province	1. (on line) information (QW).	2. analysis of the situation, specification of requests and systems; 3. designing software for information systems of social policy falling within the scope of competences of the Province or selection of appropriate softwares existing in the market -1 st phase *BO, FO	4. designing software for information systems of social policy falling within the scope of competences of the Province or selection of appropriate softwares existing in the market -2 nd phase *BO, FO
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H Communication and informing the general public

1.	Public services of the Province	1. (on line) information for the portal of the system of public services of the APV (QW); 2. providing multilingualism for the portal of the system of public services of the APV.	3. connection to the library network of Vojvodina- e-Library of the APV.	4. analysis of the situation, specification of requests and systems for e-Administrative library; 5. designing software for development of specialised e-Administrative library or selection of appropriate softwares existing in the
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				market *BO, FO
2.	Public services of Provincial administrative authorities	1. analysis of the situation, specification of requests and systems pertaining to web-presentations of Provincial authorities	2. standardisation of web-presentation	3. introduction of the system of public services of Provincial administrative authorities in accordance with the EU Recommendations*FO, BO
3.	Public procurements	1. (on line) information (QW)	2. on-line documentation for public procurements; 3. planning public procurements; 4. coordination of public procurements- 1 st phase.	5. coordination of public procurements- 2 nd phase *BO 6. e-Public procurements*FO, BO
4.	Informing the general public	1. designing the unique electronic inquiry (e-Request) for info kiosk(QW); 2. providing multilingualism for info kiosk.		

I Spatial resources management				
1.	Geo-spatial systems	1. on-line information (QW).	2. data base of the land purpose in Vojvodina	3. infrastructure of spatial data (SDI) of Vojvodina *FO, BO

J Affairs pertaining to EU association				
1.	Monitoring competitions from all fields		1. analysis of the situation, specification of requests and systems	2. system for monitoring competitions*BO

K Allocation of financial resources				
1.	Subsidies and donations	1. on -line information on (QW).	2. on line tender documentation for subsidies and donations.	3. designing software or selection of appropriate softwares existing in the market *BO 4. introduction of e-Subsidies and e-Donations systems *FO, BO

L Funds				
1.	Planning and preparation of the budget	1. analysis of the situation, specification of requests and systems	2. preparation of budgetary module; 3. preparation of a module for budget inspection.	5. introduction of integrated budgetary system- e-Budget *BO
2.	Budgetary book-keeping	4. analysis of the situation, specification of requests and systems		
3.	Payments	6. analysis of the situation, specification of requests and systems; 7. payment orders- eZP (QW).		14. introduction of the integrated system- e-Treasury*BO
4.	Book keeping	8. analysis of the situation, specification of requests and systems	9. preparation of the book keeping module	
5.	Payroll account	10. analysis of the situation, specification of requests and systems	11. preparation of the module for payroll account	
6.	Record keeping of assets	12. analysis of the situation, specification of requests and systems	13. designing e-Inventory software (bar code)	
7.	Monitoring and supervision		15. analysis of the situation, specification of requests and systems	
				16. it should be integrated with other systems *BO

M HR (human resources)				
1.	Personal record keeping	1. analysis of the situation, specification of requests and systems; 2. preparation of module for personal record-keeping – 1 st phase *BO, FO	3. preparation of module for personal record-keeping – 2 nd phase *BO, FO	
2.	Human resources management	1. analysis of the situation, specification of requests and systems;	2. designing software or selection of appropriate softwares existing in the market *BO, FO	4. introduction of LM systems; 5. introduction of eLearning system. *BO, FO
			3. implementation of trainings for ECDL	

N Technical processes				
1.	Integrated communication infrastructure	1. connecting with the DTD facility where Provincial authorities and organisations are situated (QW).	2. connecting with other dislocated facilities where Provincial authorities and organisations are situated	3. Call Centre *FO, BO
2.	Management of utilisation of facilities of the Province		1. analysis of the situation, specification of requests and systems ; 2. designing software or selection of appropriate softwares existing in the market -1 st phase *BO, FO	3. designing software or selection of appropriate softwares existing in the market -2 nd phase *BO, FO
3.	Management of utilisation of the motor pool of the Province	1. analysis of the situation, specification of requests and systems	2. designing software or selection of appropriate softwares existing in the market *BO	

4.	Warehouses-distribution and record-keeping of materials, equipment and spare parts		1. analysis of the situation, specification of requests and systems; 2. designing software or selection of appropriate softwares existing in the market -1 st phase *BO	3. designing software or selection of appropriate softwares existing in the market -2 nd phase *BO 4. introduction of systems for e-Ordering, e-Monitoring of situation and e-Reporting *BO
5.	Maintenance and security of buildings of the Executive Council and Assembly	1. designing software for employees attendance records (QW) *BO 2. designing software for records of entries into building *BO	3. introduction of video-surveillance system*BO 4. preparation of the project of coordinated supervision of buildings SCADA;	5. implementation of the project of coordinated supervision of buildings SCADA *BO
6.	Maintenance and security of buildings of the Province	1. analysis of the situation, specification of requests and systems	2. designing software or selection of appropriate softwares existing in the market *BO	3. designing software for e-Technical system or selection of appropriate softwares existing in the market *BO
7.	Preparation and publication of printed material	1. analysis of the situation, specification of requests and systems; 2. technical and personnel equipment .	3. designing software for e-Publishing or selection of appropriate softwares existing in the market *BO	4. introduction of e-Publishing system*BO, FO

O ICT support				
1.	Internal information		1. improve, supplement, promote	2. info kiosk should be supplemented and integrated with functions for informing visitors about services which Provincial authorities offer to users; 3. providing multilingualism.
2.	Infrastructure and configuration management	4. on line records on SW and HW	5. analysis of the situation, specification of requests and systems ; 6. designing software or selection of appropriate softwares existing in the market- 1 st phase;	7. designing software or selection of appropriate softwares existing in the market- 2 nd phase .
3.	Change management		8. analysis of the situation, specification of requests and systems ; 9. designing software or selection of appropriate softwares existing in the market- 1 st phase;	10. designing software or selection of appropriate softwares existing in the market- 2 nd phase.
4.	Management of ICT capacity and accessibility		11. analysis of the situation, specification of requests and systems; 12. designing software or selection of appropriate softwares existing in the market- 1 st phase;	13. designing software or selection of appropriate softwares existing in the market- 2 nd phase.
5.	Disaster recovery management		14. analysis of the situation, specification of requests and systems; 15. designing software or selection of appropriate softwares existing in the market- 1 st phase;	16. designing software or selection of appropriate softwares existing in the market- 2 nd phase .

6.	Education and improvement of IT professionals	17. creation of computer classroom for training (QW); 18. analysis of the situation, specification of required trainings.	19. implementation of trainings for ECDL and other trainings for IT professionals.	
7.	Cost management		20. analysis of the situation, specification of requests and systems; 21. designing software or selection of appropriate softwares existing in the market- 1 st phase	22. designing software or selection of appropriate softwares existing in the market- 2 nd phase .

5.2 ORGANISATIONAL INFRASTRUCTURE

Organisational infrastructure includes an established system for strategy implementation with an established apportionment of competencies and responsibilities. It is recommended to use ITIL (The Information Technology Infrastructure Library) in establishing the organisational infrastructure; ITIL represents a collection of best practices of global IT management intended for improved provision of high quality IT services.

5.2.1 Competencies for the provincial eAdministration

Competencies for the provincial eAdministration comprise the following fields: policy making, coordination of the development of the provincial eAdministration, implementation, support and development, monitoring and safety, i.e. data protection.

5.2.1.1 Policy making

In the field of policy making in the domain of eAdministration and the introduction of ICT, special attention should be paid to the normative-legal framework, standardization, evaluation of results, IT infrastructure and human resources.

Normative-legal framework

To implement this strategy successfully, the provincial bodies need to adopt relevant provincial regulations so as to ensure the application of the law, as well as to take active participation in adopting new laws and regulations.

The relevant provincial regulations would include regulations which, according to the Constitution and the law, stipulate in further detail issues of publicly accessible information, security protection, i.e. data protection, information systems, electronic documents, electronic signatures etc.

Standardisation

Standardisation in the scope of eAdministration and introduction of ICT entails the procedure of collection and application of relevant standards, specifications and technologies, which should ensure the following basic characteristics of the eAdministration system: *interoperability, safety, openness, flexibility and scalability*.

The standards should cover operative processes and procedures, as well as technical-technological aspects in the following basic categories:

- user interface;
- exchange and integration of data and documents;
- web-based services;
- content management and definition of metadata;
- identity management;
- network standards;
- standards which relate to systemic operations and monitoring;
- standards for specific fields of operation.

To ensure compatibility of solutions within the provincial eAdministration itself as well as compatibility with solutions on other administrative levels (national and local), it is

proposed that a separate body be formed for standardization of the provincial eAdministration, to carry out the process of implementation of standards.

Evaluation of Results

Indicators should be defined for evaluation of results of the implementation of eAdministration Strategy. Some of the possible indicators include: access to Internet (citizens, business sector), use of Internet in communicating with public administration (citizens, business sector). Another issue required is to define precise follow-up procedures in the eAdministration implementation process. These procedures should provide information which will ensure successful and cost-effective application of ICT in the provincial administration. Their basic role is to create grounds for formulating corrective measures in managing the Strategy. For defining evaluation indicators and procedures, we propose formation of a separate body for the standardization of the provincial eAdministration.

Information Technology Infrastructure

In defining the policy, mechanisms need to be defined for establishing, maintaining and applying standards for each class of resources required for the provincial administration. Basic classes of resources comprised by the information technology infrastructure are the communication network, hardware resources, software resources and information resources.

Human Resources

Special attention shall be devoted to strengthening of existing capacities of human resources and introducing mechanisms for their continuous improvement and development.

5.2.1.2 Coordination of Development of Provincial eAdministration

Coordination of development of the provincial eAdministration comprises integrated management of activities and projects on the provincial level, significant for the implementation of this strategy and the development of eAdministration of provincial authorities. The development of the provincial eAdministration should also be coordinated with kindred activities on the national and local level.

5.2.1.3 Implementation, Support and Development

Implementation entails performance of activities and carrying out projects of eAdministration in provincial authorities, established by an action plan, through ensuring basic and supplementary operational support, carrying out operational tasks for ensuring all resources and research-developmental activities for the eAdministration of provincial authorities.

5.2.1.4 Supervision

Supervision entails financial supervision, by means of controlling the expenditure of financial resources intended for the implementation of eAdministration, as well as supervision of the implementation of the strategy, control of realisation of activities and projects of eAdministration of the provincial authorities.

5.2.1.5 Security and Data Protection

Security and data protection in the provincial eAdministration must be ensured by adopting adequate legal acts, but also in the technical sense, especially by determining the competencies of the administration in performing tasks of certification (for internal digital signatures and within the provincial eAdministration).

5.2.2 Distribution of Competencies and Responsibilities for Provincial eAdministration

The President of the Executive Council is responsible for the coordination of the provincial eAdministration strategy policy.

The Committee for Provincial Authorities eAdministration Strategy Management shall be responsible for policy making and coordination of activities in implementing the strategy, management of projects of provincial authority's eAdministration, evaluation of results, supervision over the implementation of the strategy, and defining corrective measures. The most expedient solution would be for this body to be managed by the President of the Executive Council, and for its members to be the Provincial Secretary for Legislation, Administration and National Minorities, the Provincial Secretary for Finance, the Provincial Secretary for Science and Technological Development, the Director of the Administrative and Technical Services of the Provincial Authorities, and eminent experts in the fields significant for the introduction of eAdministration of provincial authorities.

The Provincial Secretariat for Legislation, Administration and National Minorities, in cooperation with competent provincial administrative bodies and the expert service, shall be tasked for preparing the relevant provincial legal regulations.

The Administrative and Technical Services of the Provincial Authorities, via a separately formed basic internal unit, e.g. IT Sector, shall be responsible for ICT infrastructure, basic operational support and development of the projects of eAdministration of provincial authorities. Based on the conducted analysis, external partners with extensive experience in the field of eAdministration gained by working in EU countries could be engaged to carry out these tasks.

IT professionals in provincial authorities would ensure additional operational support, based on cooperation with the expert services.

Support to development in the domain of eAdministration may be provided by university and research institutions from Vojvodina as well as ICT companies, and support can also be given to founding a separate research-development centre for eAdministration with the University of Novi Sad.

The Provincial Secretariat for Finance, through the Budget Inspection, shall be in charge for financial supervision.

Implementation of data security shall be the responsibility of IT Sector, the Administrative and Technical Services of the Provincial Authorities, coordinated by the Committee for Provincial Authorities eAdministration Strategy Management.

5.2.2.1 Committee for Management of eAdministration Strategy of Provincial Authorities

A Committee for Management of eAdministration Strategy of Provincial Authorities should be formed on the level of Executive Council, as a working body in charge for defining policies and coordination of activities on strategy implementation, managing eAdministration projects, evaluation of results, supervision over the implementation of the strategy and defining corrective measures.

Based on cost analysis, with the aim to achieve cost-effectiveness and efficiency, the Committee may propose to the Executive Council to form separate working bodies (e.g. a separate body for standardisation of provincial eAdministration, a separate body for data security of the provincial eAdministration).

Based on the need of the tasks the Committee performs within its competences, the Committee may form separate working groups for key areas of the provincial eAdministration.

Based on the monitoring and analysis of the strategy implementation as well as the data on its realisation obtained from the IT Sector, the Administrative and Technical Services Department of the Provincial Authorities, the Committee reports to the Executive Council on the accomplished level of strategy implementation twice a year, or more frequently if required.

Bearing in mind that this strategy is a part of realisation of one of the pillars the Provincial Administration Reform and Development Strategy, the mentioned working body shall also submit period reports to the Council for Reform of Provincial Administration.

Upon the request of the IT Sector and the Administrative and Technical Services of the Provincial Authorities, the Committee shall provide its opinions related to issues relevant for its work.

5.2.2.2 The Administrative and Technical Services of Provincial Authorities – IT Sector

Due to permanently increasing role of ICT in the work of provincial authorities, a separate basic internal unit shall be formed for the purpose of realising the strategy within the Administrative and Technical Services of Provincial Authorities, e.g. the IT Sector (Sector for Information Technologies), responsible for implementation of the strategy in the organisational-technical sense and for ICT infrastructure, basic operational support and development of eAdministration projects in provincial authorities. IT Sector is a part of ICT infrastructure, as it ensures central organisational and technical support to eAdministration projects. IT Sector shall perform tasks within its scope of work in accordance to contemporary trends in the field of information-communication technologies. The task of the Sector shall be to support the needs of clients, therefore it must be closely connected with all provincial authority bodies, in order to ensure provision of good quality service for citizens.

The IT Sector of the Administrative and Technical Services of the Provincial Authorities submits periodic reports on its performance to the Committee for Provincial Authorities eAdministration Strategy Management, and may also request the Committee's opinion on issues relevant for its work.

The IT Sector should have three smaller internal units, e.g. departments: for network and hardware, for application software and for improving ICT in provincial administrative bodies. *The Department for Network and Hardware* would maintain the existing LAN and computer equipment, network services, ensure work safety, access control and data safety on LAN, coordinate planning and realise procurement of new computer equipment, plan and conduct supervision over the realisation of introducing a computer network in the APV facilities and its integration with LAN. *Department for Application Software* would maintain and improve existing applications, update web-presentations, ePortal, procure software, introduce new applications. *Department for improving ICT in provincial administrative bodies* would propose new ICT solutions and plan their introduction; educate and train IT professionals and in cooperation with the Human Resources Service participate in organising ICT training sessions for provincial civil servants. This department would support the functions of the *Contact Centre for eAdministration* which shall ensure an integrated access point for help to all levels of eAdministration users (provincial civil servants, business entities, citizens). A separate task of this Centre would be interaction with users, in order to collect their remarks and suggestions.

It is estimated that the IT Sector would require at least 30 employees for performing these tasks.

Considering all mentioned above, a change would be required in the existing internal organisation of the Administrative and Technical Services of the provincial authorities. The newly formed basic internal unit would perform a part of the tasks of the existing Sector for application of informatics, information-documentation tasks and printing tasks, related to information technology.

5.3 ICT INFRASTRUCTURE

ICT infrastructure for the provincial eAdministration comprises: communication infrastructure, computer infrastructure, provincial administrative registries, provincial spatial infrastructure, the provincial eAdministration portal, standardised software solutions and modules for the provincial administration and the provincial eServices, standards of informatics safety, methodologies for development of informatics solutions, management of eAdministration projects and insurance of quality. The following text lays out the vision for each of the listed elements.

5.3.1 Communication Infrastructure

The future communication infrastructure, in accessing services, should guarantee to all users the speed of 100Mbps, which should be supported by both active and passive

network equipment. The future network infrastructure should provide additional safe functioning of the existing network. It is necessary to link LAN with dislocated parts (other provincial organisations and organisational units of provincial authorities outside the headquarters). Also required would be to link with the computer network of the Government of the Republic of Serbia, as well as with local self-governments on the territory of the Province.

5.3.2 Computer Infrastructure

Server computers must ensure stable performance, have guaranteed system support or updates (from providers or manufacturers) 24 hours a day every day. In order to ensure the required work performance and reliability, redundant servers computers need to be provided for high-priority services and applications. Depending on applications, safety conditions and the decisions of relevant bodies, the same version of the network operating system should be used. For systems that do not provide high-priority services and applications, one server machine shall be used, except in cases when problems occur in the functioning or unsatisfactory performance. This category also includes network services. Adequate conditions should be provided for accommodation of servers (air conditioning, video surveillance, safe access, backup power supply etc.)

Work stations should ensure unhindered and efficient work at all times, therefore it is recommended that future equipment provision be "Brand name" equipment which meets the internally stipulated hardware requirements. It is desirable that operating systems be the same in all work stations, so that their maintenance could be unified and maintenance costs thus reduced. Work stations should be categorised and configurations defined based on the use of installed programmes. Operating systems on work stations should meet the following key requirements: stable functioning, unhindered running of applications used in provincial authorities, that they support centralised management, multi-lingual support for the user interface. In making decisions on solutions to be used, the option should be considered of using Open Source technologies in accordance with EU recommendations.

For peripheral support, network devices should be used with support for printing, copying, scanning, fax reception, etc.

5.3.3 Provincial Administrative Registries

Provincial administrative registries should be developed, which would be accessible on the Intranet and Internet, thereby an opportunity would be created for broad access to data the provincial administration require in carrying out their duties (Knowledge Management). These registries should be from various fields, particularly the fields of education, culture, health care and social policies. The provincial administrative registries should be accessible through an access point and meet the interoperability requirement.

5.3.4 Provincial Spatial Infrastructure

ICT support should be built which is the basis for implementation of complex spatially determined services in various fields, and especially in agriculture, urbanism and civil engineering, water management, forestry, etc. This element should be implemented drawing on modern technologies and EU standards related to this area (SDI-Spatial Data Infrastructure).

5.3.5 Provincial eAdministration Portal

It is necessary to harmonise the development of public services system on the provincial level, and the existing portal should be improved with new services and access should be provided to all under equal conditions.

5.3.6 Standardised Software Solutions and Modules

Software solutions and modules for the provincial eAdministration should be based on standards for data and document storage, processing, exchange and integration. These standards should ensure basic characteristics of the system: interoperability, safety, openness, flexibility and scalability.

Data base management systems should meet the basic needs for long-term data storage, search and update, as well as to facilitate enlargement of applications for new services. The basis for standardisation shall be the projects in the eVojvodina Programme related to software architecture, intranet architecture and public services architecture. The recommendation is that Ms .NET and Java software platforms be equally utilised.

It is recommended to use Open Source technologies, and in deciding on which SQL solutions will be used, special consideration should be given to decisions adopted on the national (state) level and to EU recommendations.

Implementation of IT system should be carried out in such a way as to facilitate centralised management of applications, i.e. controlled maintenance and development, harmonisation and integration, as well as team work of IT professionals.

5.3.7 IT Security

Increase is planned in the level of information security, as the matter at hand are the provincial authorities whose systems contain and store confidential documents and information, therefore considerable protection needs to be provided for systems and information. IT security should be organised in such a way so as to ensure basic principles of information security: confidentiality, integrity, availability, privacy, identification (authentication and authorisation), traceability, safeguards. The basis for achieving IT security shall be ISO 27000 and/or NIST standard, as well as good practices from developed countries. According to these standards, IT security shall be organized in the form of a project which, among other things, requires preparation and adoption of a number of documents relevant for IT security. These documents should encompass particularly the following elements: planning, guidelines, programmes, protection measures and mechanisms, people and management of the IT security project. The methodology defined by the standards involves implementation of measures and mechanisms with continuous monitoring of results and undertaking corrective measures. In implementing IT Security Programme, account will be given to previous experience and practices in the Executive Council concerning handling of confidential documents; ensuring the functioning of electronic mail servers (protection against copying, forwarding, authentication, encrypting, etc.); secure printing; secure handling of servers and communication equipment in accordance with the standards and regulations comprising also the safe functioning of devices; backup policy which will ensure continuation of functioning of all critical services in events of failure of any of the components in the chain of IT hardware-software components; external access to the internal system, authorized users with remote access rights from home through the eAdministration Portal, via protected channels of virtual private network (VPN), and based on the environment authentication.

5.3.8 Methodologies for developing IT solutions, management of eAdministration projects and quality assurance

IT solutions for the provincial eAdministration shall be developed by using own resources as well as outsourcing. Outsourcing here refers to a part of IT activities whose implementation may be contracted to other organisations/companies (external partners). Such an implementation model requires a satisfactory level of centralised management. Centralised management is ensured by means of classification of IT processes, functionality assurance methodologies, and by measuring system efficiency and assessments. These mechanisms shall be applied for both modes of development (own resources and outsourcing).

5.3.9 IT Processes

As there exist vast opportunities to use outsourcing in the future for carrying out certain work or segments of work, process levels need to be defined for efficient management and monitoring of their realisation, which falls under the responsibility of the IT Sector.

Main IT processes:

- coordination of IT development:
 1. IT strategy (goals, resources, finance).

- IT project management:
 1. Identification and control of project resources;
 2. Progress measurement and adjusting the process as it progresses toward its goals.
- IT Service quality management:
 1. Planning;
 2. Implementation;
 3. Evaluation;
 4. Corrective measures.
- IT security:
 1. Planning;
 2. Guidelines;
 3. Programmes;
 4. Protection;
 5. Human resources.
- Procurement/Development:

IT/communication equipment and services (computer and peripheral equipment, communication equipment, communication services, IT services);

 1. System and application software (specification of needs, selection, licensing).
- Maintenance:
 1. IT/communication equipment and services (computer and peripheral equipment, communication services, information services);
 2. System and application software (specification of needs, selection, licensing).
- User support:
 1. Help-desk;
 2. Continuous education of users.
- Human resources development:
 - Incentives, trainings, career planning, performance assessments.

5.3.10 Methodologies for functionality assurance

The "Policies and standards for ICT use in provincial and municipal institutions of AP Vojvodina" Project, within the "eVojvodina" Programme, may be used as a basis for selection of methodologies, while adhering and applying EU methodologies:

- methodology of system selection – in choosing new systems according to user needs;
- application of project management;
- methodology of ensuring IT safety;
- risk assessment methodology;
- change management methodology;
- planning and decision-making methodology regarding ICT infrastructure.

Regarding the projects related to system implementation whose objectives are ensuring development and implementation of outsourcing, IT Sector needs to be consulted first on using a particular methodology.

The objective of introducing the use of these methodologies is to ensure better quality in system implementation and carrying out of tasks.

At the same time, use of methodologies must not cause complication of tasks or slow down implementation of projects. For the sake of efficiency, methodologies should be used for adaptation and take-over, in order to prevent unnecessary additional work.

5.3.11 Measurement of system efficiency and assessment

The IT system should provide efficient support to carrying out duties in the whole organisation. To improve the use of IT system, preventive and corrective measures should always be applied.

Introduction of a system for measuring system efficiency would contribute to:

- a simplified anticipation of future user needs;
- providing a basis for making decisions related to IT;
- efficiency in human resources management.

Efficiency assessment relates to:

- o assessment of values of the IT system (the satisfaction level of users);
- o defining objectives and creating opportunities for professional improvement of IT professionals and evaluation of achievements;
- o analysis of use of outsourcing;
- o measuring IT expenditure (TCO - Total Cost of Ownership).

5.3.12 Outsourcing

Outsourcing is defined on three levels: BPO (Business Process Outsourcing) – management, analysis, transactions; APO (Application Process Outsourcing) – tasks related to integration, system analysis, development of applications; ITO (Information Technology Outsourcing) – management and maintenance of the technological infrastructure.

A provisional division of IT processes, according to whether they may be performed relying on own resources and/or using external partners, is presented in Table 5.

Table 5

IT Processes	Resources	Comment
<i>Planning and Coordination of IT Development</i>		
IT strategy - IT planning, resources, fin. Plan (1)	Own resources/ External partners	Own resources: Financial Plan and supply of funding External partners: Consultancy services in the field of Strategy evaluation and updating
<i>Managing IT Projects</i>		
- Identification and control of resources on the project - Progress measurement and adjustment of processes while working on achieving the objective	Own resources/ External partners	Own resources: in part, identification of resources and adaptation of processes, full control of resources and implementation of progress measurement External partners: in part, identification of resources, specifications of metrics, assistance in adaptation of processes.
<i>IT Services Quality Management</i>		
- Planning - Implementation - Evaluation - Corrective measures	Own resources/ External partners	Own resources: planning, implementation, evaluation and performance of corrective measures. External partners: assistance in defining corrective measures
<i>IT Security</i>		
- Planning - Guidelines - Programs - Protection mechanisms and measures - Implementation - Human resources	Own resources/ External partners	Own resources: planning, guidelines, implementation, people; in part, programmes, mechanisms and measures; External partners: assistance in developing programmes and specifications of security mechanisms and measures.
<i>Procurement/Development</i>		
- Information-communication equipment and services - System and application software (specification of needs, selection, licensing);	Own resources/ External partners	Own resources: planning and procurement of ICT computer and peripheral equipment, communication equipment, communication services, information services, system and application software (specification of needs, selection, licensing), partial development of application software External partners: development/delivery of application and system software.
<i>Hardware/Network/Software Maintenance</i>		
- Maintenance planning and organisation (current, investment) - Performing regular maintenance (preventive, corrective) - Performing investment maintenance	Own resources/ External partners	Own resources: Planning and organisation of maintenance; carry out of regular maintenance. External partners: Carry out of investment maintenance
User support - help desk, education of users	Own resources/ External partners	Own resources: help desk, a segment of user education External partners: a segment of user education

Human resources development - motivation, training, career planning, performance evaluation	Own resources/ External partners	Own resources: in part, motivation, training, career planning, performance evaluation External partners: Consultancy services in the field of training, career planning methodologies, defining of metrics for performance evaluation; conduct trainings.
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5.4 HUMAN RESOURCES

IT professionals need to be provided who will be able to support the development and maintenance of the provincial eAdministration, train the provincial public servants to use the provincial eAdministration system and train citizens and business entities in using the electronic public services.

A constant influx of new experts needs to be secured. Improved capacity of human resources could be achieved in the field of ICT By providing scholarships and in cooperation with academic institutions, as well as by filling in vacancies in an objective manner solely on the basis of expertise, knowledge, experience and creativity. Corresponding continuous ICT education programmes should exist for each category of employees in the public administration.

IT literacy (ECDL) should be stipulated by provincial regulations and acts on internal organisation and systematisation, as a requirement for all work posts. Also stipulated should be work posts for IT professionals in the provincial public administration bodies.

An ECDL Test Centre of provincial authorities should be established, and eLearning programme should be introduced, in order for employees to acquire required knowledge and skills.

6 GAP ANALYSIS

The goal of the Gap Analysis (Table 6) is to establish disparities between the existing situation and the Vision laid out in this Strategy, in order to facilitate the definition of required tasks to be carried out in order to overcome existing inconsistencies.

Table 6

Current Situation	Vision	Gap
Organisational structure and competencies for eAdministration are not defined precisely and adequately.	Precise and functional organisational structure for provincial eAdministration, with established competencies and a system of responsibility and accountability.	Organisational structure needs to be established and a Committee needs to be formed for managing the Provincial Authorities eAdministration Strategy and the IT Sector, and foster their role in the upgrading of the work of provincial authorities; Respect for deadlines and time management in project implementation.
Provincial regulations do not exist which would regulate areas significant for provincial eAdministration.	Introduction of ICT in the work of provincial authorities and an eAdministration system for provincial authorities, regulated by provincial regulations.	Required provincial regulations need to be prepared and adopted, within the constitutional and legislation frameworks.
Methodologies are not adopted for development of IT solutions and managing projects of eAdministration and quality assurance.	Methodologies for development of IT solutions, management of eAdministration projects and quality assurance have been adopted and are being applied.	The said methodologies need to be defined more comprehensively, they need to be adopted and their application needs to be ensured.
Certain standard mechanisms are implemented on the level of network protection, operating systems and application servers.	Fully implemented standards and methodologies for IT security.	IT security needs to be supplemented, in accordance with current international standards and practices in developed countries.
Most of the work processes in provincial authorities does not have ICT support and are not inter-linked.	Creation of transparent processes, which have ICT support and are inter-linked.	Work processes need to be have IT support, and their mutual interaction needs to be ensured.

Current Situation	Vision	Gap
Documents produced during the course of work of provincial authorities are not included in the document management system, there does not exist an e Entry Registry Office and eArchives.	Work processes supported by the systems of eEntry Registry Office and eArchives.	Based on the analysis of the current situation and the specification of needs, there needs to be done a selection of systems, development of software and introduction of the systems of eEntry Registry Office and eArchives.
Work processes of provincial authorities directed at provision of services for users do not have ICT support and it is not possible to perform them electronically, without the presence of the user in person and/or submitting written requests (on paper) by the user.	The provincial authorities provide services to their users electronically.	The provincial authorities need to standardise work processes and introduce new applications, which will facilitate high level of ICT services for users.
The communication infrastructure does not include connection between the facilities of the Executive Council and the Assembly and the dislocated facilities of the provincial authorities outside the headquarters, provincial organisations, funds, etc.	Communication infrastructure includes connection between the facilities of the Executive Council and the Assembly and the dislocated facilities of the provincial authorities outside the headquarters, provincial organisations, funds, etc.	The communication infrastructure needs to be upgraded, by extending it to the dislocated facilities of provincial authorities, and by ensuring connection with other public and private networks. This upgrading should be realized in a manner and according to the standards which have been applied in building the LAN in the facilities of the Assembly and the Executive Council.
The computer and system software infrastructure do not support fully the introduction of modern applications.	The computer and system software infrastructure fully support introduction of modern applications.	"Brand name" work stations need to be procured, with adequate specifications and hardware needs to be upgraded continuously; Existing software needs to be legalised and necessary application software needs to be procured for the work of provincial administration; Also required is provision of adequate software for monitoring of work stations (desktop management) and system backup on a tape storage device.
Systems and applications that support work processes of provincial administrative bodies are not integrated in an integrated system.	Applications and data bases, as well as IT systems are integrated, inter-linked and thus efficiently support work processes of the provincial authorities.	Re-engineering and migration of existing applications to contemporary software platforms and their integration into the system; introduction of new applications and IT systems on contemporary software platforms, accompanied with integration into the system.
There do not exist electronically available, integrated provincial administrative registers, intended for institutions whose founders are provincial authorities or which cooperate with them.	Provincial administrative registers are integrated and electronically available to institutions whose founders are provincial authorities or which cooperate with them, with access provided through Internet.	Based on the analysis of situation and specification of needs, there needs to be made selection of systems, development of software and introduction of electronic provincial administrative registers.
Services for spatial resources management partially meet the needs of the provincial eAdministration.	Introduction of systems which provide full support for the provincial spatial infrastructure.	ICT support needs to be build which would serve as a basis for implementation of complex spatially determined services in various fields, relying on modern technologies and EU standards in this area (SDI - Spatial Data Infrastructure).
The provincial eAdministration Portal partially meets the needs of the provincial eAdministration and of users.	The provincial eAdministration Portal fully meets the needs of the provincial eAdministration and of users.	Development of public services system needs to be harmonized on the provincial level, and the existing Portal needs to be upgraded with new services and equal access needs to be ensured to all.

Current Situation	Vision	Gap
Computer and IT literacy is not stipulated as a requirement for job competency in most provincial authority bodies. The level of IT literary, culture and discipline of provincial public servants is unsatisfactory.	Provincial public servants are computer literate and possess ECDL, and apply those skills in their work.	Provincial regulations and acts on internal organisation and systematisation of work posts need to set computer literacy (ECDL) as a requirement for all work posts; trainings in ICT skills.
Insufficient numbers of highly qualified IT professionals employed in the provincial administrative bodies.	IT professionals exist in all provincial administrative bodies, as support to development and maintenance of the provincial eAdministration.	Constant influx of new IT professionals needs to be ensured; trainings for acquiring ICT knowledge and skills.
There does not exist an integrated education and professional training system.	Adequate ICT-supported permanent education programmes exist for each category of employees.	Introduce eLearning system, found ECDL Test Centre and conduct trainings.

7 ACTION PLAN AND PROJECTS

The Action Plan represents a framework for implementation of projects which will be carried out in order to achieve the future situation as described in the Vision. The analysis of gaps between the existing and the future situation defined the projects, of which some have sub-projects.

Titles of projects and entailed activities (labelled as in Table 4):

1. Adoption of a Decision on the Strategy of eAdministration of Provincial Authorities, adoption of relevant provincial regulations, and presentation of the above to the general public
2. Upgrading of infrastructure significant for the implementation of the Strategy.
N1/1,2; O6/17;
Potprojekti: 2.1 – 2.7
3. Introduction of on line contents on the eAdministration Portal of provincial authorities (levels 1 and 2 of public services)
B2/9; C1/2; D1/1; E1/1; F1/1; G1/1; H1/1; H3/1-2; H4/1-2; I1/1; K1/1; O1/1-3;
4. Introduction of a workflow management system module
B2/4-5; O5/14-16;
5. Introduction of a workflow management and record-keeping module
B1/4; B2/1; B2/5-6; B6/1; B7/1; C1/1; D1/3; E1/2; F1/2; G1/2; J1/1; H1/4; H2/1; H3/2; H4/3; K1/2; M1/1; M2/1; N5/1; N7/1;
6. Introduction of ERP systems (budget planning and development, budget accounting, payments, bookkeeping, payroll accounting, records on core funds, control and audit etc.)
L1-7/1-16
7. Introduction of a Call Centre
N1/3;
8. Introduction of internal applications of the provincial authorities (BO)
A1/1-3; B1/1-7; B4/1-4; B5/1-4; C1/1,3; H1/3; J1/2; N3/1,2; N4/1-4; N5/1-4; N6/1-3; O2/4-7;
9. Extension of electronic public services (FO)
B2/2,7-8; B6/1-3; B7/1-3; D1/3-5; E1/2, F1/2-4; G1/2; H1/2,4-5; H2/1-3; H3/3-6; K1/2-4; M1/1-3; M2/1,2,4; N2/1-3; N7/1-4;
10. Introduction of a system for provision of services by mobile phones, upon user request (m-services)
11. Enlargement of activity management in the fields of education, culture, social and health policies within the competencies of the Province directed at organisations
D1/2,4,5; E1/3,4; F1/3,4; G1/3,4;
Sub-projects: 11.1 – 11.37
12. Infrastructure of spatial data of the Province
I1/2-3;
13. Organisation of trainings for ECDL and other trainings for IT professionals
O/18,19;
14. Introduction of an information management system – MIS
O1/1-3; O7/20-22;
15. Formation of a Knowledge Centre
16. Improvement of public services (levels 3 and 4 of public services)
B2/4,8; B3/1; B6/3; B7/3; C1/4-5; D1/2,6; E1/3,4; F1/5; G1/3,4; H1/5; H2/3; H3/6; I1/3; K1/4; M1/2; M2/5; N2/2,3; N7/4;
17. Other/remaining sub-projects
O3/8-9; O4/11, 12, 13.

7.1 TIME-FRAME OF PROVINCIAL AUTHORITIES eAdministration STRATEGY

The eAdministration Strategy comprises three time-frames, short-term projects by the end of 2007, medium-term projects between 2008 and 2008, and long-term projects between 2010 and 2013.

Short-term Action Plan includes objectives:

- which are a matter of urgency for provincial authorities;
- which can be implemented with limited resources;
- which can facilitate QW situation (quick introduction and substantial success);
- which constitute a basis for the implementation of the Vision.

Medium-term Action Plan includes tasks and projects:

- which are more complex to introduce;
- which necessitate more substantial resources (financial, infrastructure, human);
- which are lower priority;
- which necessitate basic infrastructure and systems in order to be implemented.

The long-term Action Plan's objective is to:

- bring provincial authorities into a strategic condition as defined in the Vision.

Projects whose implementation is envisaged through long-term tasks should be regularly reviewed in accordance to the results of the short-term and medium-term projects.

7.2 PROJECTS

The following chapter provides a detailed description of the above listed projects, according to:

- project identification;
- objectives;
- description;
- main tasks and phases;
- cost estimate;
- implementation time-frame estimates;
- project type;
- links to other projects.

In planning required resources for each project, consideration needs to be given to the possibility of change in the existing environment for eAdministration of provincial authorities, as well as continuous development of ICT technologies, which is why the Action Plan can only ensure a necessary framework, which will be complete, although some parameters may be adjusted according to real alternatives and opportunities.

Project Identification	1 – Adoption of Decision on Provincial Authorities eAdministration Strategy, adoption of relevant provincial regulations and their presentation to the general public
Objectives	Adoption of the Decision on Implementation of the Strategy and its funding, as well as adoption of other relevant provincial regulations will provide a legal framework for implementation of measures and activities laid out in the Action Plan. Presentation of these Decisions to citizens will ensure information of the public with the upgrade of the provincial administration and the results of strategy implementation.
Description	Within this project, following the adoption of the Decision on Provincial Authorities eAdministration, it should be made accessible to the public, by means of presentations and public debates. According to competencies and the Strategy, a schedule and deadlines need to be defined for adopting provincial regulations which would determine issues of transparency of information, security protection and data protection, information systems, electronic documents, electronic signatures, etc. The above regulations should be accessible to the public.
Main Tasks and Phases	<ul style="list-style-type: none"> ● Presentation of the Strategy to the public; ● Publication of results of the Strategy implementation; ● Preparation, adoption and presentation of provincial regulations.

Cost Estimate	1,500,000.00 dinars
Implementation Time-Frame Estimate	eight months
Project Type	short-term/mid-term
Links to Other Projects	The outcome of this project will define the whole implementation of the Strategy, therefore all other projects depend on this project.

Project Identification	2 – Promotion of infrastructure important for Strategy implementation
Objectives	Establish communication and computer infrastructure required for implementation of proposed applications
Description	The project will provide detailed specification of the remaining required infrastructure, its procurement and installation. The project consists of following sub-projects: a) 2.1. Local computer network in the DTD building; b) 2.2. Local computer network phase II; c) 2.3. Internet access and linkage with remote facilities and local self-governments (pilot project with several local self-governments); d) 2.4. Procurement of software for desktops and server management; e) 2.5. Procurement of software for making backup copies of data and operating systems on servers located in the Executive Council building by means of backup tapes of DELL LT-24 devices; f) 2.6. Computer classroom for training; g) 2.7. Video surveillance systems for the buildings of the Executive Council and the Assembly of the Autonomous Province of Vojvodina in Novi Sad.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. needs analysis for project implementation; 2. public procurement; 3. delivery of infrastructure components based on public procurement; 4. installation of infrastructure components; 5. testing of installed parts (functioning, security); 6. provision of training for users; 7. continuous project management and quality assurance.
Cost Estimate	32,615,000.00 dinars
Implementation Time-Frame Estimate	13 months
Project Type	mid-term
Links to Other Projects	Part of this project implementation is under way, and other projects can be carried out simultaneously, as a part of the already built infrastructure allows for that.

Project Identification	3 – Introduction of on-line contents on the Provincial Authorities eAdministration Portal (1st and 2nd level of public services)
Objectives	Provision of on-line information on public services and the work of provincial authorities and interactive communication with citizens and business entities (1 st and 2 nd level).
Description	One of the important tasks within the project will be to intensify the use of the existing provincial public services Portal, whereby the Provincial Secretariats would implement particular bundles of services from their respective areas of work.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. needs analysis and definition of contents for the Portal; 2. entry of data and introduction of forms for downloading on the Portal; 3. migration of existing data onto the Portal; 4. test the functioning of the Portal; 5. ensure adequate training for provincial civil servants and IT professionals – Portal administrators; 6. marketing of new services; 7. continuous project management and quality assurance.
Cost Estimate	Costs have not been estimated, as the project implementation will be assigned to provincial civil servants.

Implementation Time-Frame Estimate	six months
Project Type	short-term/mid-term
Links to Other Projects	This project does not dependent on other projects. This project is a prerequisite for the implementation of Project 16.

Project Identification	4 – Introduction of a module for workflow management system
Objectives	Provision of support for work processes in provincial authorities through expansion of the existing workflow management system
Description	This project will extend the existing workflow management system (eDocumentus). Work processes will be standardised and adapted so as to be integrated into the system. Specification of internal and external documents, as well as work processes for document management will be based on the XML technology. XML schemes of internal and external documents will be formed, which will ensure document exchange in an internal environment and provide a module for group work (groupware).
Main Tasks and Phases	<ol style="list-style-type: none"> 1. specification of work processes and documents in the workflow management system; 2. conduct an analysis to determine functional, technical and security requirements of the workflow management system; 3. implementation of mechanisms for workflow and linked software modules; 4. entry of data that is unavailable electronically; 5. test the functioning of the system; 6. provide training for users; 7. establish internal procedures with other systems; 8. continuous project management and quality assurance.
Cost Estimate	6,000,000.00 dinars
Implementation Time-Frame Estimate	18 to 24 months
Project Type	mid-term
Links to Other Projects	This project may commence along with Projects 3 and 5. This project is a prerequisite for the implementation of Projects 8 and 16.

Project Identification	5 – Introduction of module for document management and archiving
Objectives	Provide support for work processes of provincial authorities by implementing electronic documents and systems for document management and archiving.
Description	This project will introduce a system for managing and archiving electronic documents, and documents will be standardised and adapted in order to be integrated into the system. Analysis of standards and existing solutions in the area of digitalisation and document archiving will be taken as a basis for developing the software.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. conduct analysis in order to establish functional, technical and security requirements for a proposed system for management and archiving of electronic documents; 2. public tender for selecting a contractor; 3. procurement of software and hardware components for the system; 4. installation of hardware components of the system; 5. introduction of the system; 6. standardisation and adaptation of documents to the system; 7. linkage with other systems (the Portal, the workflow management system etc.); 8. entry of data that are unavailable in the electronic format; 9. test the functioning of the system; 10. provide training for users; 11. continuous project management and quality assurance.
Cost Estimate	6,000,000.00 dinars
Implementation Time-Frame Estimate	12 months
Project Type	mid-term
Links to Other Projects	This Project could commence at the same time with Projects 3 and 4, which will reduce costs and required resources, and must be completed before the introduction of Project 8.

Project Identification	6 – Introduction of ERP system (budget planning and development, budget accountancy, payments, bookkeeping, payroll accounting, core funding records, control and auditing etc.)
Objectives	Creation of an integrated system in the area of finances, in order to improve work efficiency in this area and facilitate provision of on-line services.
Description	Link existing and new sub-systems in the area of finances (Budget planning and development, Budget accountancy, Payments, Bookkeeping, Payroll accounting, Core funding records, Control and auditing etc.) into an integrated system. The Project shall also determine future opportunities for integration with other segments, to be implemented at a later stage.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. analysis of situation, specification of requirements and systems; 2. define detailed requirements for sub-system integration; 3. implementation of integration software; 4. adapt installed components to the system; 5. migration of the existing data; 6. test the integrated system; 7. establish operating processes with the system; 8. provide training for users; 9. continuous project management and quality assurance.
Cost Estimate	6.800.000,00 dinars
Implementation Time-Frame Estimate	18 months
Project Type	mid-term/long-term
Links to Other Projects	This Project must be completed before the introduction of Projects 11, 15 and 16.

Project Identification	7 – Introduction of Call Centre
Objectives	Provide information on services of provincial authorities by telephone.
Description	An access point will be ensured for services of provincial authorities, so as to make them accessible by telephone.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. determine detailed requirements for a Call Centre system; 2. public tender for selecting a contractor; 3. introduction of the system; 4. establish a structure for the Interactive Voice Response (IVR) system; 5. introduction of a call logging system; 6. test the functioning of the system; 7. provide training for system operators; 8. marketing of the Call Centre; 9. continuous project management and quality assurance.
Cost Estimate	Market analyses need to be conducted beforehand, which will provide a basis for cost estimate.
Implementation Time-Frame Estimate	four months
Project Type	long-term
Links to Other Projects	Project 4 should be completed prior to the commencement of this Project.

Project Identification	8 – Introduction of internal applications of the Provincial Administration (BO)
Objectives	Development of BO applications for providing support to internal work processes of the provincial authorities.
Description	The Project is to provide internal applications, and in this phase it will provide electronic payment order forms as well as an internal application for attendance records of employees, through the following sub-projects: <ol style="list-style-type: none"> a) 8.1. Payment order form– ePO; b) 8.2. Development of software for recording attendance of employees.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. analysis of current situation, specification of requirements for the BO system; 2. design new applications and integrate them with existing internal applications;

	<ol style="list-style-type: none"> 3. migration of the data; 4. introduce the BO system; 5. test the functioning of the system; 6. provide training for users; 7. continuous project management and quality assurance.
Cost Estimate	3,000,000.00 dinars
Implementation Time-Frame Estimate	eight to ten months
Project Type	mid-term/long-term
Links to Other Projects	Projects 4 and 5 must be completed before the initiation of this Project, while this Project must be completed before the initiation of Project 9, or they should be initiated simultaneously.

Project Identification	9 – Extension of electronic public services (FO)
Objectives	Provide public access to services supported by BO systems.
Description	<p>The project will implement the electronic services defined by the Vision and make them accessible to the public.</p> <p>At this phase, the Project entails the following sub-projects:</p> <ol style="list-style-type: none"> a) 9.1. Integrated electronic query (eQuery) for the Info desk (QW); b) 9.2. Public service for access to materials used in sessions and out of sessions of the Assembly and The Executive Council.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. analysis of current situation and specification of requests; 2. public tender for selecting the contractor; 3. procurement of system components; 4. design the application; 5. integrate the Portal with the system; 6. test the system; 7. provide training for users; 8. marketing of the electronic public services; 9. continuous project management and quality assurance.
Cost Estimate	2,400,000.00 dinars
Implementation Time-Frame Estimate	18 months
Project Type	long-term
Links to Other Projects	This project can be carried out together with Project 8 so as to reduce the costs and required resources.

Project Identification	10 – Introduction of the system for provision of services via mobile telephone at user's request (m-services)
Objectives	The objective of the project is to make public access to public services of provincial authorities through m-services, thereby expanding the circle of users.
Description	During the project, modern mobile services will be introduced, using the possibility of integrating them into the existing systems.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. analysis of current situation and specification of requests; 2. public tender for selecting the contractor; 3. procurement of system components; 4. design the application; 5. integration of the system with existing application (workflow and document management); 6. test the system; 7. establishing the procedures of functioning with the system; 8. marketing of the electronic public services; 9. continuous project management and quality assurance
Cost Estimate	Prior market analysis need to be conducted, which would provide a basis for cost estimate.
Implementation Time-Frame Estimate	five to six months
Project Type	long-term
Links to Other Projects	Project 8 has to be completed prior to commencement of this project.

Project Identification	11 – Expansion of activity management in the field of education, culture, social and health care policy within the competence of the Province
Objectives	Provision of services to users in the field of education, culture, social and health care policies within the competence of the Province.
Description	During the project, internal system services will be expanded towards organisations within the competence of the Province. The project will comprise the following sub-projects: a) 11.1. Provincial administrative registers; b) 11.2. Public service for delivery of statistical data; c) 11.3. Public service for enrollment in higher education institutions in the APV.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. analysis of current situation and specification of requests; 2. public tender for selecting the contractor; 3. procurement of system components; 4. implementation and adjustment of the system; 5. migration of the existing data; 6. entry of data that are unavailable in the electronic format; 7. test the system; 8. ensure the availability of the system to its users (organisations and citizens); 9. provide training for users; 10. marketing of electronic public services; 11. continuous project management and quality assurance.
Cost Estimate	15,000,000.00 dinars
Implementation Time-Frame Estimate	30 months
Project Type	long-term
Links to Other Projects	Projects 2, 6 and 8 have to be completed prior to commencement of this project.

Project Identification	12. Spatial Data Infrastructure of the Province
Objectives	Specification, implementation and introduction of subsystem to support spatial resources management in the Province.
Description	Spatial data infrastructure (Spatial Data Infrastructure – SDI) provides the basis for finding, evaluation and application to users and providers of spatial data at the level of administration, commercial department, non-profit sector, educational and research institutions and citizens. SDI consists of the following: data, standards, policies, technologies and procedures for different agencies and organisations aimed at cooperative creation, use and exchange of spatial information. A significant component of the system is Geoportal of Vojvodina, complied with the EU standards (Inspire Initiative and EU Directive on Spatial Data Infrastructure, adopted in February 2007).
Main Tasks and Phases	<ol style="list-style-type: none"> 1. establishment of the policy of creation and use of geospatial data; 2. establishment of the standards of creation, use and exchange of geo-data; 3. establishment of the policy and institutional arrangements (management, privacy and safety of data, data exchange, price and terms of use); 4. technology specification (hardware, software, networks, databases, technical implementation plans); 5. public tender for selecting the contractor; 6. delivery of the system components; 7. installation of hardware components; 8. implementation and adjustment of the system; 9. establishment of Geoportal of Vojvodina harmonised with the EU standards (Inspire Initiative); 10. development of applications for relevant provincial authorities (civil engineering, agriculture, urban planning); 11. provision of training for users; 12. marketing of the electronic public services; 13. continuous project management and quality assurance.
Cost Estimate	Due to complexity of the project, prior analyses need to be conducted, which would provide a basis for cost estimate.
Implementation Time-Frame	60 months

Estimate	
Project Type	long-term
Links to Other Projects	Project 2 has to be completed before the commencement of this project.

Project Identification	13 – Conduct of training for ECDL and other trainings for IT professionals
Objectives	Enhance the level of knowledge of provincial civil servants in the field of IT
Description	The project comprises the conduct of trainings for ECDL and other trainings for IT professionals. The trainings are intended to ensure computer literacy for provincial civil servants (IT professionals and users), who require this kind of knowledge in their job description.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. analysis of current situation and specification of required decisions; 2. establishment of the ECDL test centre for provincial authorities; 3. implementation of the eLearning system; 4. envisage the adequate level of computer literacy for all positions; 5. organise the programmes of permanent ICT education for all categories of employees; 6. continuous project management and quality assurance.
Cost Estimate	6,500,000.00 dinars
Implementation Time-Frame Estimate	six to 12 months
Project Type	short-term/mid-term
Links to Other Projects	Results of this project will ensure the efficiency in implementation of other projects.

Project Identification	14 – Introduction of the Management Information System (management information system - MIS)
Objectives	Provision of the system for management of information on functioning and current situation in the provincial authorities, through the integraton of the existing applications and data sources.
Description	During the project, a new MIS will be implemented along with the necessary system integrations.
Main Tasks and Phases	<ol style="list-style-type: none"> 1. determine detailed system requirements; 2. public tender for selecting the contractor; 3. delivery of components for the system; 4. implementation and adjustment of the systems; 5. implementation of necessary databasis; 6. integration of the system for accepting the information from other existing systems; 7. migration of the existing data; 8. integration with other systems; 9. training of users; 10. continuous project management and quality assurance.
Cost Estimate	Due to complexity of the project, prior analyses need to be conducted, which would provide a basis for estimate of required funds.
Implementation Time-Frame Estimate	eight to ten months
Project Type	long-term
Links to Other Projects	Introduction of MIS is efficient when all the systems providing data for MIS have been implemented.

Project Identification	15 – Establishment of Knowledge Centre
Objectives	Specification, implementation and introduction of a software support for establishment and use of a knowledge base.
Description	This Project will create a knowledge base (collection, storage and use of knowledge required for carrying out the tasks of provincial authorities). The system will be based on artificial intelligence techniques and implemented as a public electronic service with a web access.

Main Tasks and Phases	<ol style="list-style-type: none"> 1. determine detailed system requirements; 2. public tender for selecting the contractor; 3. procurement of components for the system; 4. implementation and adaptation of the system; 5. creation of knowledge bases; 6. migration of existing data; 7. entry of data that are unavailable in the electronic form, 8. expansion of Call Centre services; 9. integration with other systems; 10. training of users; 11. marketing of new services; 12. continuous project management and quality assurance.
Cost Estimate	15,000,000 dinars
Implementation Time-Frame Estimate	36 months
Project Type	long-term
Links to Other Projects	Depends on the infrastructure.

Project identification	16 – Improvement of public services (3rd and 4th level of public service)
Objectives	Provision of electronic public services extended to 3 rd and 4 th level.
Description	Project does not introduce new services, but encourages integration of existing systems thus enabling movement to a higher level of availability of electronic services.
Main tasks and milestones	Through projects 3, 4, 5, 6, 8 and 12 the contents for implementation of this project are established.
Cost Estimate	Due to the project complexity, previous analyses have to be carried out, which will provide the basis for estimate of required funds.
Estimated implementation period	From eight to ten months
Project type	long-term
Relation to other projects	Projects 3, 4, 5, 6 and 8 have to be completed until the commencement of this project.

7.3 SUB-PROJECTS

In the following chapter more detailed description of the sub-projects has been given by means of:

- project identification;
- types;
- objectives;
- descriptions;
- methods of measuring results;
- cost assessment;
- assessment of the implementation deadlines.

In those subprojects in which it was possible to determine the risk factors, an extra field was added and named likewise.

Project and subproject identification	Project 2: Improvement of infrastructure relevant to the strategy implementation Subproject 2.1 Local computer network of the DTD building
Type	Short-term (QW)
Objectives	Connection with the DTD building housing Provincial bodies and organisations.
Description	It is necessary to develop computer infrastructure for data transfer in the parts of DTD building, which would provide for the network support for distributed information system to all provincial authorities located in that building and functionally linked by their activities with the Assembly and the Executive Council. It is necessary to define the solution enabling communication of the users located in the DTD building, the facilities of the Assembly and the Executive Council and public communication networks and particularly the Internet access. Designed solution should

	provide for logical grouping of the network users on the basis of organisation-technological requirements, regardless of their physical arrangement within the building. Designed solution should provide for easy dismantling of both passive and active equipment due to possible relocation. Take into account uniformity of active network equipment. Due to unification, provide installation of active equipment of the Cisco producer.
Methods of measuring results	Through existing and functioning network of the DTD building
Cost Estimate	2,000,000 dinars
Estimated implementation period	three months

Project and subproject identification	Project 2: Improvement of infrastructure relevant to the strategy implementation Subproject 2.1 Local computer network 2nd phase
Type	Short-term (QW)
Objectives	Increasing reliability and security of the local computer network
Description	It is envisaged to implement the second phase of local computer network development for the Executive Council and Assembly. Implementation of the second phase provides for: additional central communication device in the Central node, additional main communication line from Central node up to the existing terminal optical box in the Assembly building and the module for connection with dislocated parts of organisations-users. Thus, additional security for functioning of the network is provided.
Methods of measuring results	Period of the network dysfunction caused by the breakdowns at the communication equipment.
Cost Estimate	8,000,000 dinars
Estimated implementation period	three months

Project and subproject identification	Project 2: Improvement of infrastructure relevant to the strategy implementation Subproject: 2.3. Internet access and connection to remote facilities and local self-governments (pilot project with a number of local self-governments)
Type	Short-term (QW)
Objectives	Providing the Internet access and connection to remote users
Description	Installation of L2VPN connection to currently single provider of telecommunication services. This will enable 8Mb for the Internet access as well as 46X2Mb connection to remote facilities in the territory of the city of Novi Sad as well as to the local self-governments. Back up line will be provided through the academic network for the Internet access.
Methods of measuring results	The number of the Internet service users, the number of connected remote facilities
Cost Estimate	Established connection to one regional node 1,200,000 dinars Monthly costs for the connection to the regional node: 85,000 dinars Established connection to one access node: 200,000 dinars Monthly costs for the connection to the access node: 10.000 din. Initial costs for fitting out central node for the connection to one regional and one access node: 2,000,000 dinars Increase of current monthly costs of the central node:120,000 dinars
Estimated implementation period	three months

Project and subproject identification	Project 2: Improvement of infrastructure relevant to the strategy implementation Subproject: 2.4. Software procurement for desktop and server management
Type	Short-term (QW)
Objectives	Providing centralised management and monitoring of computer equipment configurations.
Description	Desktop and server management software should enable: <ul style="list-style-type: none"> - management and monitoring of configuration, work stations and servers; - review and reports; - on line database on computer HW and SW; - automatic generation of messages via e-mail to the system administrators in case there are alerts; - web interface. Possible solutions: IBM Tivoli, CA asset management.
Methods of measuring results	Successful detection of the number of monitored servers and work stations as well as of changes in their HW and SW configurations.

Cost Estimate t	2,000,000 dinars
Estimated implementation period	two months

Project and subproject identification	Project 2: Improvement of infrastructure relevant to the strategy implementation Subproject 2.5. Procurement of the software for generation of backup data copies and development of an operative system at the servers in the Executive Council by means of tape backup device DELL LT-24
Type	Short-term (QW)
Objectives	Providing support for creation of backup copies
Description	Back-up software should provide for: <ul style="list-style-type: none"> - creation of back up data copies at the servers of the Executive Council; - simple and quick return of complete data; - use of existing tape-storage device; - recording the image of all data from all servers.
Methods of measuring results	Reliability and efficiency of procedures for creation of backup copies and data restoration.
Cost Estimate	2,500,000 dinars
Estimated implementation period	three months

Project and subproject identification	Project 2: Improvement of infrastructure relevant to the strategy implementation Subproject 2.6. Computer training room
Type	Short-term (QW)
Objectives	Providing conditions for organising the training
Description	The project envisages provision of equipment for one room in the Executive Council building which will be used for training of provincial civil servants in computer science. For this purpose, it is necessary to provide 20 computers with an Internet access.
Methods of measuring results	Enhancement of knowledge and the number of employees in the field of computer science
Cost Estimate	2,500,000 dinars
Estimated implementation period	two months

Project and subproject identification	Project 2: Improvement of infrastructure relevant to the strategy implementation Subproject 2.7. Surveillance system (CCTV) in the facilities of Executive Council and Assembly of the Autonomous Province of Vojvodina in Novi Sad
Type	Short-term (QW)
Objectives	Installation of the modern electronic building security system in order to enhance security
Description	Within the activities aimed at modernisation of physical security of the Executive Council and Assembly facilities, the preliminary project "Video Surveillance" was designed, which defines the grounds for development of the unique video surveillance system for those facilities. Detailed project will define total number, type and exact locations of cameras, installation phases as well as other issues relevant to the development of an efficient system of video control. The project envisages installation of 74 external cameras and 34 internal cameras, as well as provision of equipment for the technical room for monitoring of video recordings. It also envisages under-ground installation of Geophone coaxial sensor cable.
Methods of measuring results	Effective monitoring of facilities and enhanced security
Cost Estimate	12,000,000 dinars
Estimated implementation period	four months

Project and subproject identification	Project 8: Introduction of internal applications of the provincial government (BO) Subproject 8.1. Payment request – eZP
Type	Short-term (QW)
Objectives	Automation of the procedures for preparation, processing and fulfillment of payment requests
Description	To automate the most comprehensive process within the Treasury Department work by introducing electronic payment request for budgetary users. The request is then electronically sent to the Provincial Secretariat of Finance.
Methods of measuring results	The number of budgetary users to which payments are made by using this application.
Cost Estimate	300,000 dinars
Estimated implementation period	five months

Project and subproject identification	Project 8: Introduction of internal applications of the provincial government (BO) Subproject 8.2. Development of employees' attendance record software
Type	Short-term (QW)
Objectives	Control of employees attendance in the Assembly and Executive Council building.
Description	Existing programme for employees' attendance record to be upgraded by the application for real time reporting, written in Java software tool, by means of three-level architecture.
Methods of measuring results	Effective control of employees' attendance
Cost assessment	200,000 dinars
Estimated implementation period	four months

Project and subproject identification	Project 9 – Extension of electronic public services (FO) Subproject 9.1. Unique electronic request for Info kiosk
Type	Short-term (QW)
Objectives	Automation of procedures for preparation, processing and fulfillment of requests for Info Kiosk.
Description	Simplified process of obtaining basic information by means of Info Kiosk, providing multilingual feature, no need for change of source or executive code.
Methods of measuring results	Through users of the Info-Kiosk
Cost Estimate	400,000 dinars
Estimated implementation period	six months

Project and subproject identification	Project 9 – Extension of electronic public services (FO) Subproject 9.2. Public service for the access to materials used in as well as outside the sessions of the Assembly and the Executive Council of the APV
Type	Middle-term
Objectives	Specification, development and introduction of the software support for storage and search of materials used in as well as outside the sessions of the Assembly and the Executive Council.
Description	This document is considered as a bibliographical document which is processed according to international library standards, stored into the database of bibliographical records and searched according to library search standards. The sessions' minutes will be separately processed, as well as structured and searched by the elements of the document structure (agenda, conclusions, decisions etc.)
Methods of measuring results	Availability of the public service for the access to the materials used in as well as outside the sessions of the Assembly and the Executive Council.
Cost Estimate	2,000,000 dinars
Estimated implementation period	12 months
Risk factors	Quality of metadata for the description of materials Required time for processing of existing materials

Project and subproject identification	Project 11: Extended management of activities in the field of education, culture, social and health policy lying within the competence of the Province Subproject 11.1. Provincial administrative registers
Type	Long-term
Objectives	Establishing the database on institutions within the Provincial competence
Description	This project encompasses the development of the web-based software support for creation and keeping of provincial administrative registers. These registers should include relevant information on the institutions founded by the Province or performing activities which are of interest to the Province. Particularly important are the institutions in the field of education, health and social policy. Provincial administrative registers should be made accessible through one access point and meet interoperability requirement.
Methods of measuring results	Volume and quality of information; the number of the register users.
Cost Estimate	15,000,000 dinars
Estimated implementation period	36 months

Project and subproject identification	Project 11: Extended management of activities in the field of education, culture, social and healthcare policy lying within the competence of the Province Subproject 11.2. Public service for delivery of statistical data
Type	Middle-term
Objectives	Specification, implementation and introduction of electronic public service for delivery of statistical data for cultural institutions in the Province.
Description	In order to define data, annual statistical forms of cultural institutions will be used, as well as the information necessary for the Cultural Institute of Vojvodina in order to monitor the activities of cultural institutions. In addition, the system of basic reports for the Institute's needs will also be implemented. Public electronic service of the level 4 (transaction regime) for delivery of statistical data of the cultural institutions will be implemented and introduced. The system will be based on XML technology. XML schemes of all documents concerning annual statistical forms of the cultural institutions will be created, thus enabling exchange of documents both internally and externally (other relevant institutions-Republic Insitute of Statistics and other republic and provincial authorities). Thus developed system for the cultural institutions may be extended to electronic filling in of statistical forms for other institutions (agriculture, industry etc.). This is one of public services prescribed by the EU.
Methods of measuring results	The number of cultural institutions delivering statistical information through this service.
Cost Estimate	7,000,000 dinars
Estimated implementation period	12 months
Risk factors	Existence of an appropriate Internet access for public servic users.

Project and subproject identification	Project 11: Extended management of activities in the field of education, culture, social and health policy lying within the competence of the Province Subproject 11.3. Public service for enrollment in higher education institutions in the APV
Type	Middle-term
Objectives	Specification, implementation and introduction of electronic public service for the enrollment in higher education institutions in the Province.
Description	Specification, implementation and introduction of the public electronic service of the level 4 (transaction regime) for the enrollment in higher education institutions in the APV. The system will be based on XML technology. XML schemes of all documents used in the process of enrollment in higher education institutions will be created, thus enabling exchange of documents internally and externally (candidates and other relevant institutions – universities, ministries, etc.). This is one of public services prescribed by the EU.
Methods of measuring results	The number of higher education institutions performing enrollment through this service.
Cost Estimate	8,000,000 dinars
Estimated implementation period	18 months
Risk factors	Existence of an appropriate Internet access for public service users.

8 APPENDIX

Appendix no. 1

List of basic normative-legal documents

In the period after 2001, the following relevant acts were adopted:

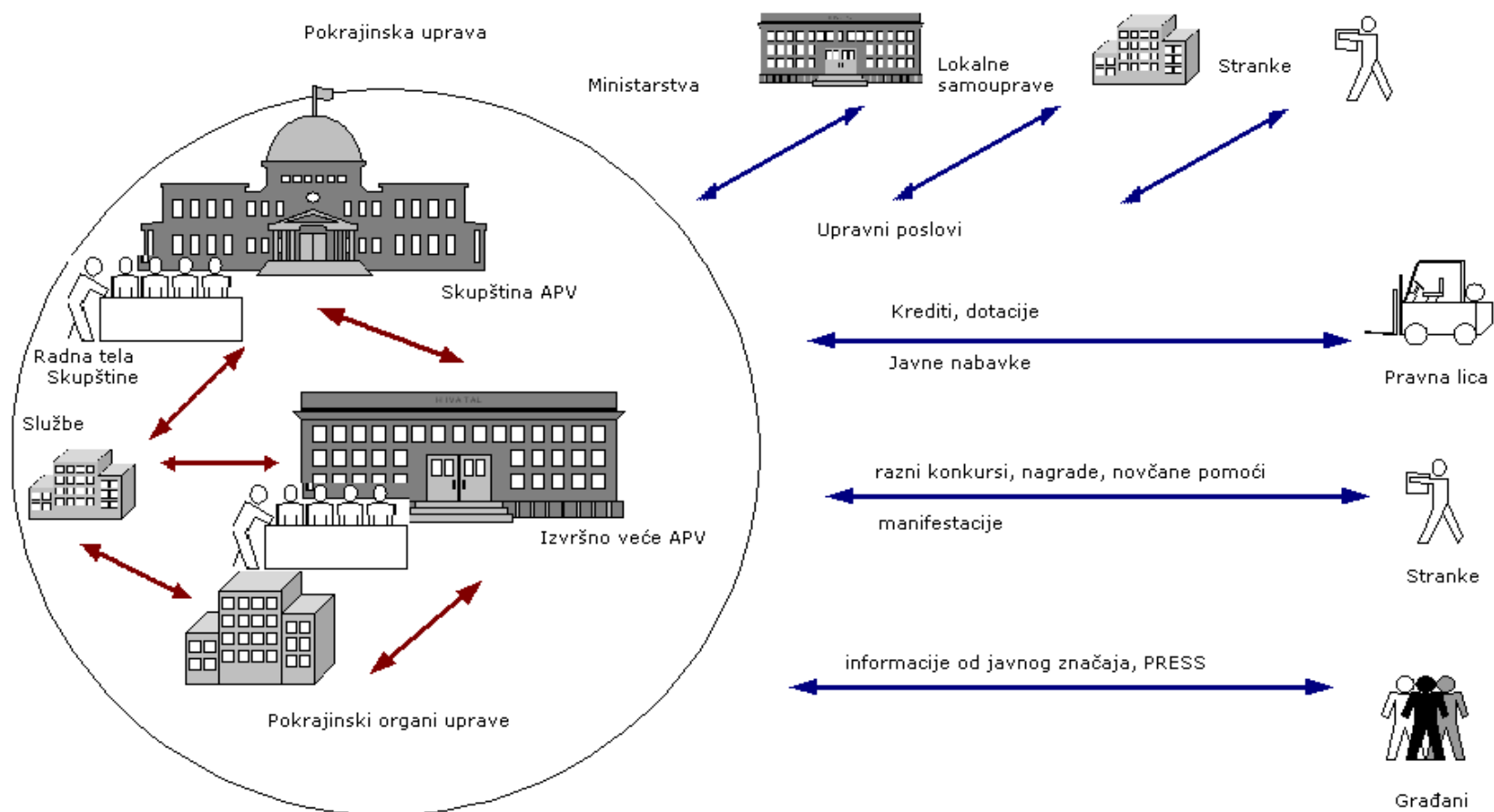
1. Public Administration Reform Strategy of the Republic of Serbia (November 2004);
2. Law on Free Access to Information of Public Importance ("Official Gazette of the RS", no. 120/04);
3. Electronic Signature Law ("Official Gazette of the RS ", no. 135/04);
4. By-laws for the enforcement of Electronic Signature Law ("Official Gazette of the RS", no. 48/05, 82/05 and 116/05) ;
5. Law on Registration of Business Entities ("Official Gazette of the RS ", no. 55/04, 61/05);
6. Penal Code ("Official Gazette of the RS ", no. 85/05, 88/05 and 107/05) ;
7. European Convention on Cybercrime, Budapest, 2005 – signed, but not ratified;
8. Decree on Allocation of Home Numbers, Numbering of Buildings, Naming of Settlements, Streets and Squares ("Official Gazette of the RS ", no.: 110/03, 137/04, 58/06);
9. Law on Standardisation ("Official Gazette of the FRY", no. 44/05);
10. Law on Telecommunications ("Official Gazette of the RS ", no. 44/03 and 36/06);
11. Law on Public Information ("Official Gazette of the RS ", no. 43/03 and 61/05);
12. Broadcasting Act ("Official Gazette of the RS ", no. 42/02, 97/04, 76/05, 79/05, 62/06, 85/06);
13. Law on Advertising ("Official Gazette of the RS", no. 79/05);
14. Law on Identity Card ("Official Gazette of the RS ", no. 62/06);
15. Decision on Provincial Administration Reform and Development Strategy ("Official Journal of the APV", no. 14/06);
16. Information Society Development Strategy in the Republic of Serbia ("Official Gazette of the RS", no. 87/06).

The most relevant laws which rely on the current development level of the ICT and are harmonised with the EU legislation are as follows:

- Law on Registration of Business Entities ("Official Gazette of the RS ", no. 55/04);
 - establishment of simple, modernised and integrated system of registration;
- Law on Free Access to Information of Public Importance ("Official Gazette of the RS", no. 120/04); - regulates the rights to free access to information of public importance, on account of the exercise and protection of public interest to be informed and implementation of free democratic system and open society.
- Electronic Signature Law ("Official Gazette of the RS ", no. 135/04) – regulates the use of electronic signature in legal affairs and other legal matters, as well as rights, obligations and responsibilities pertaining to electronic certificates etc.

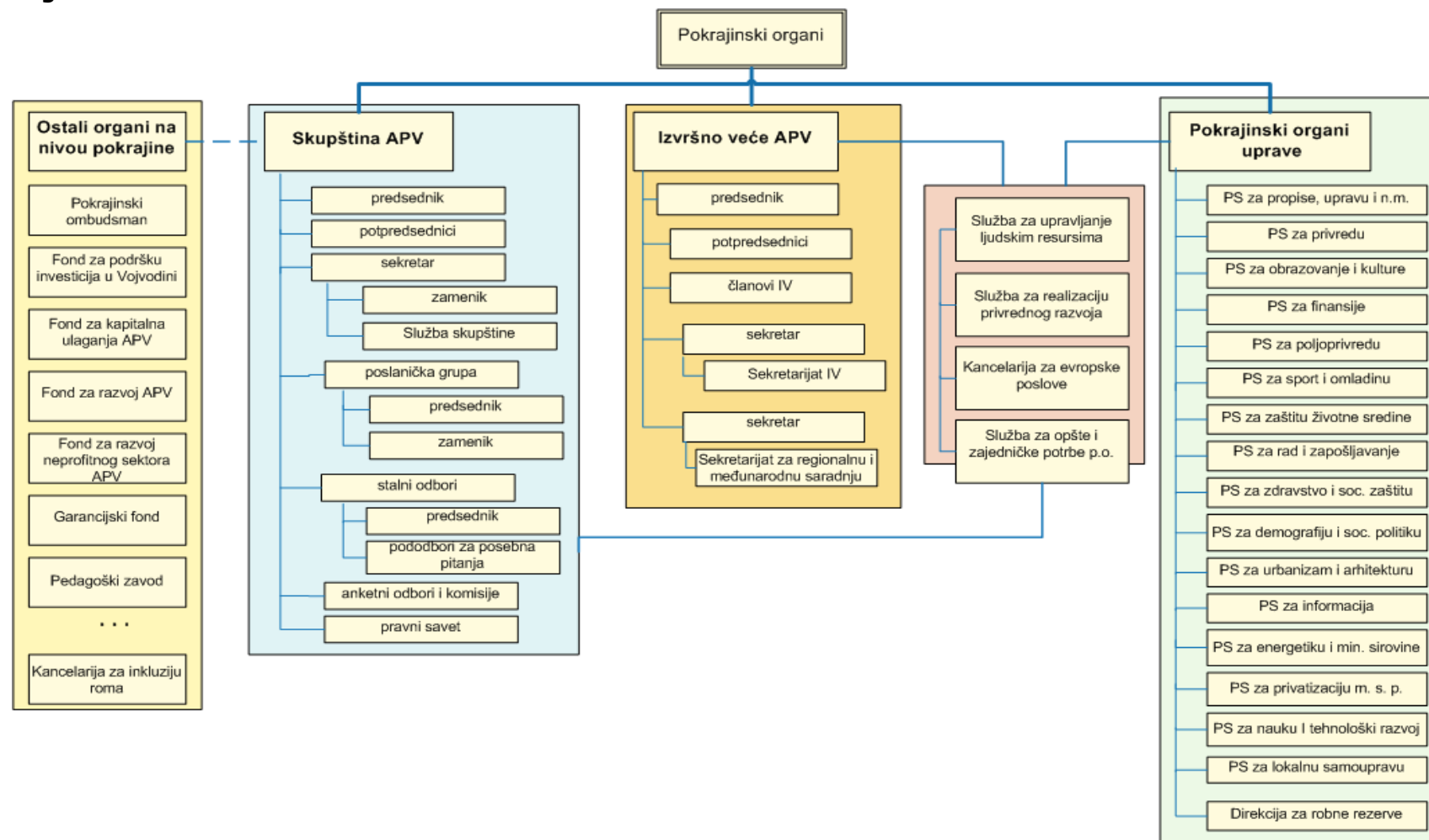
Appendix No. 2

Business Processes



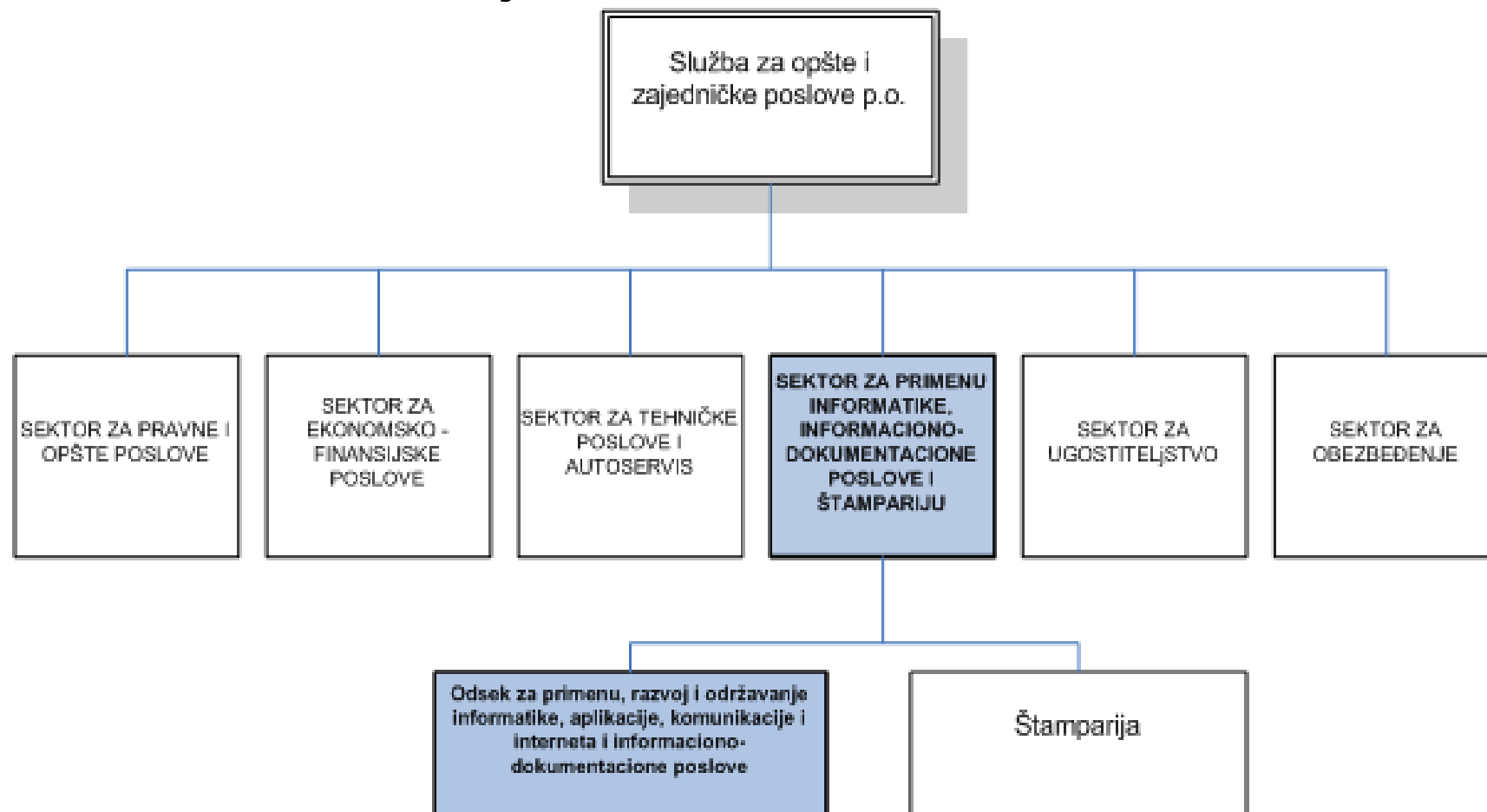
Appendix No. 3

Organisational Structure of Provincial Authorities



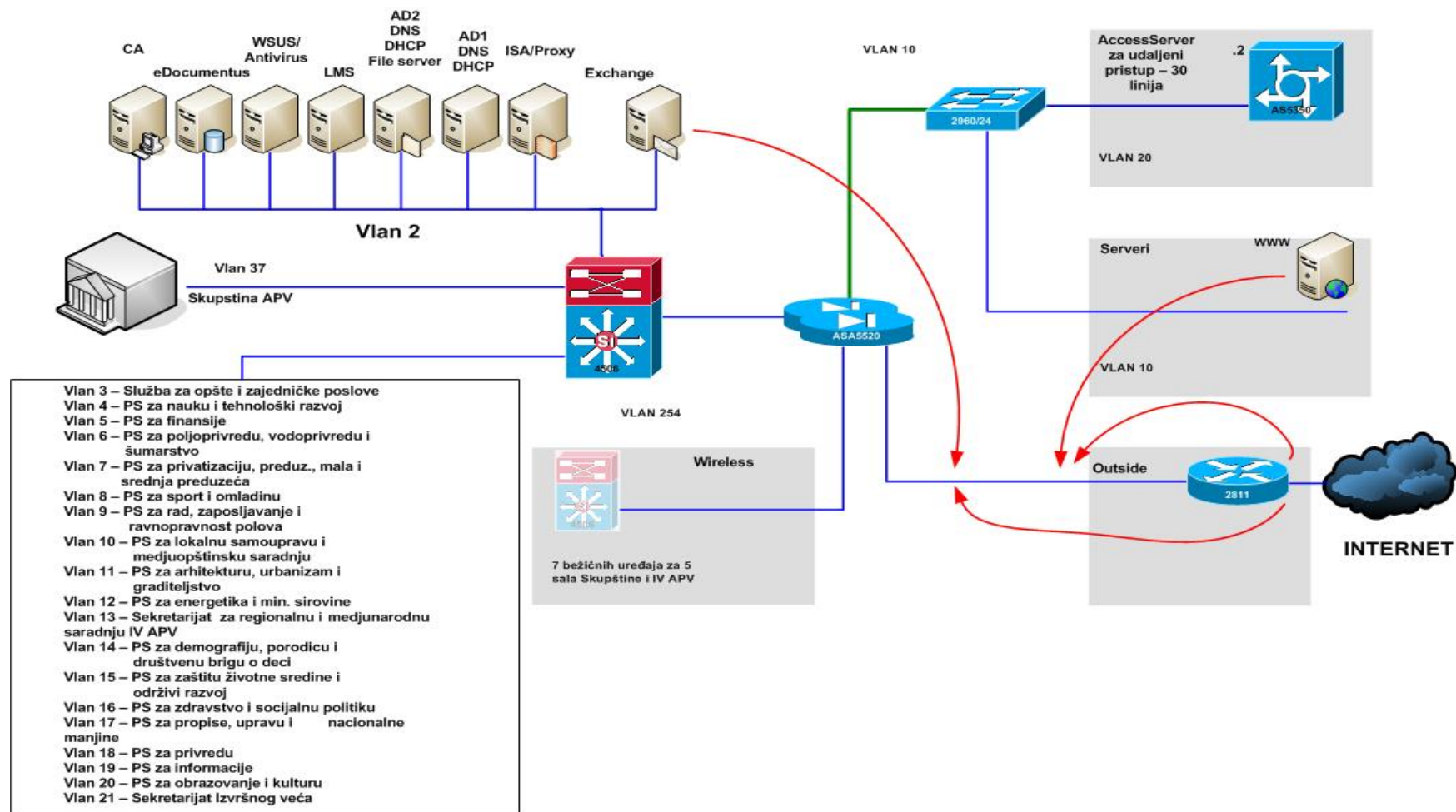
Appendix No. 4

Position of the ICT Sector Within the Organisational Structure



Appendix No. 5

ICT Network Infrastructure



Appendix No. 6

Project Overview

MAIN PROJECTS (COMPLETED)

Project title	1. Policy and standards for use of ICT in provincial and municipal institutions of the AP Vojvodina
Completion date	08/2006
Implementing party	Faculty of Natural Sciences, Novi Sad
Project description	<p>The project, which was implemented in 2006, considered the elements for development of strategic document defining the policy and standards of the ICT use in provincial and municipal administrative authorities in the AP Vojvodina. The first project part gives a short overview of information society and knowledge-based society as an ongoing phase in the development of human society. Possibilities, risks and methods of ICT application have been specially considered. The second part looks in more detail at policies and activities undertaken in the EU countries with a view to building of information society. It considers the following aspects of development of information society and particularly of e-administration: background of information society development; legal framework; development level; electronic public services; delegation of competences and available infrastructure. The third part analyses the state of e-administration in the Republic of Serbia and the AP Vojvodina. Analysis was conducted according to the model of methodology which is applied in the EU countries. The fourth part provides basis for e-administration development strategy in the AP Vojvodina. The competences of the AP Vojvodina and local self-government for all aspects of e-administration were proposed. Furthermore, organisation of these competences at the level of the AP Vojvodina was also considered.</p>
Price	391,880 dinars (VAT included)
Duration	eight months
Project title	2. Specification of intranet system information requests of the Assembly and the Executive Council of the AP Vojvodina
Completion date	06/2006
Implementing party	Faculty of Technical Sciences, Novi Sad
Project description	<p>The project considered computerisation of the intranet system of the Executive Council and the Assembly on the basis of electronic documents management. The management includes creation of electronic documents, their monitoring, exchange, search and archiving. The first part gives an overview of the current status of document management system in the Assembly and the Executive Council and designing methodology for information requests of the intranet system of provincial authorities. The second part looks at the most relevant features of the documents management system. Accordingly, the quality assessment of particular software platforms for documents management has been conducted as well as the analysis of these platforms' features required for work within the intranet system of the Executive Council. The third part examines good practices in introduction of documents management systems into the public administration authorities, such as experiences of Austria and Germany. The fourth part looks at the features of currently available documents management systems, both commercial ones and Open Source systems. The fifth part addresses the most relevant features of the intranet system infrastructure of the Executive Council, which comprises computer network, software application architecture and documents management system. The sixth part gives a formal specification of one model segment of documents management system used for preparation and organisation of the Executive Council sessions. The specification is represented in UML language.</p>
Price	899,759 dinars (VAT included)
Duration	six months
Project title	3. Software architecture of e-Vojvodina for the programme of e-Vojvodina
Completion date	08/2006
Implementing party	Faculty of Technical Sciences, Novi Sad
Project description	<p>The project considers required software architecture for the introduction of the e-Administration system in the territory of the AP Vojvodina. The first part includes an overview of the basic architecture of the software systems as a support to the e-Administration, summary of the current infrastructure status in the Assembly and the Executive Council, republic authorities and local self-governments as well as the proposal for request analysis procedure. The second part analyzes in more detail the following software components: operative system and work station applications; server operative system; database management systems: development platforms; application servers and</p>

content management systems (CMS). Within a special section, it includes the EU research into the use of Open Source software. The third part contains final analyses on the basis of previously presented data, as well as a proposal for selection of specific software types in each of the observed groups.

Price 1.095,358 dinars (VAT included)
Duration eight months

Project title

4. Specification of public services information requests of the e-Vojvodina system

Completion date 08/2006
Implementing party Faculty of Technical Sciences, Novi Sad
Project description

The project included detailed analysis of the electronic public services system and methodology for their introduction. It provides an overview of electronic public services system for citizens and business entities and methodologies for their introduction, particularly in the EU countries. It gives recommendations for implementation of the system of electronic public services system in the AP Vojvodina. The first part provides an overview of introduction of electronic public services system worldwide. The overview is split into two units: introduction of public services system in the EU countries and selected non-EU countries. Based on the given overview, the groups of public services have been selected with regard to recommendations adopted by the EU countries. Finally, recommendations have been given for the implementation of the public services system of the e-Vojvodina. The second part provides an analysis of current status of public services system in the AP Vojvodina. It also includes architecture of the public services system, public service structure as well as techniques and tools for delivery, that is, presentation of the content. Closing considerations include explanation of recommendations and methods of implementation of public services system in the AP Vojvodina. The third part contains specification and a case study example of public service.

Price 352,080 dinars (VAT included)
Duration eight months

Project title

5. Computer-communication infrastructure e-Vojvodina

Completion date 03/2006
Implementing party Faculty of Technical Sciences, Novi Sad
Project description

The project e-Vojvodina envisaged the implementation of the project aimed at construction of contemporary local computer network on the premises of the Assembly and the Executive Council and definition of the model connecting dislocated facilities of provincial administration bodies as well as of local self-government authorities and other users. This project also includes implementation of a unique physical communication infrastructure which will be used by all organisations located within the premises of the Executive Council and the Assembly. The project provides for creation of private network infrastructures of organisations-users at the logical level. The technology of virtual local area networks (VLAN) in combination with hierarchical private IP addressing is used for the implementation of logical architecture of network infrastructure of the Executive Council and the Assembly. The project also includes implementation of two additional modules: the module for the Internet connection as well as public telephone network connection; the module for the connection to dislocated parts of organisation-users.

Price 750,120 dinars (VAT included)
Duration four months

Project title

6. Basic project provincial administration authorities network

Completion date 09/2006
Implementing party Faculty of Technical Sciences, Novi Sad
Project description

The project of basic computer network concept which would provide the network support for distributed information system of provincial administration institutions of the AP Vojvodina was implemented. The project envisaged implementation of private computer network of the system, comprising all organisational-technological units, as well as its appropriate connection to public networks in the country and worldwide.

The project defines the following elements of the computer network:

- a. Functions and services supported by the computer network;
- b. Logical architecture of the computer network;
- c. Physical architecture of the computer network;
 - I. Method of connection within an individual institution;
 - II. Connection hierarchy;
 - III. Specification of communication nodes;
- d. Specification of system and communication software characteristics;
- e. Method of connection to the public network with a special emphasis on method of the Internet connection;
- f. Protection from unauthorised access;
- g. Supervision and management of the computer network operation.

Price Included in the previous projects (VAT included)

Duration 10 months

IMPLEMENTATION OF MAIN PROJECTS

Project title	7. Building of computer-communication infrastructure e-Vojvodina
Completion date	01/2007
Implementing party	SAGA D.O.O., Belgrade
Project Description	<p>Implementation of the local computer network installation in the Assembly and the Executive Council started in September 2006 and was completed at the beginning of 2007. The computer network consists of active network equipment, as well as passive and additional equipment. Active network equipment includes layer 2 and layer 3 switches, access server, firewall, wireless communication lines device and UPS (uninterrupted power supply) device (in total 83 devices of active equipment, 21 devices for uninterrupted power supply of active equipment and spare parts). Passive network equipment consists of category 6 copper cables according to TIA/EIA standard (in total 120 kilometres of copper cables), optic cables with minimum 8 multimode fibres 50/125 m, category 6 copper connectors according to TIA/EIA standard, optic SC connectors, RJ45 sockets according to TIA/EIA standard, terminal boxes, copper and optic patch panels, patch cables and 17 telecommunication closets. Additional equipment includes conduits, power panels, electrical insulation pipes, power cables, Shuko sockets, earth cables and gypsum panels. Implementation of the local computer network included all relevant works, final tests, training and final handover. The quality of components and materials used in production, as well as the quality of technical execution are in accordance with highest technical standards.</p> <p>Computer network is designed to meet the following requirements:</p> <ul style="list-style-type: none">• Functionality;• Uninterrupted data flow;• Resistance to malfunctions of critical network segments;• Functional autonomy of logical network units under conditions of malfunction;• Possibility of simple replacement of the physical network configuration;• Uninterrupted logical network (re)configuration;• Possibility of exchange of multimedial contents in Intranet and Internet environment;• Accessibility of network services in case of attempt to hinder main functionality of any network part;• Reliability;• Scalability – computer network must have possibility of easy upgrading in accordance with users' needs. <p>The computer network will provide a unique infrastructure for data transfer in the facilities of Executive Council and Assembly, which would ensure a network support for distributed information system to any organisational part of provincial authorities located in the Executive Council and Assembly buildings.</p> <p>The computer network will ensure logical grouping of network users on the basis of organisational-technological requirements, regardless of their physical arrangement in the building. It should also be in line with contemporary trends in the field of computer networks and information technologies and to comply with valid and foreseeable future standards in the field of communication and hardware-software solutions.</p> <p>Implementation is in accordance with the project of computer network provision for the Executive Council and Assembly of the Autonomous Province of Vojvodina.</p> <p>We received the opinion on technical documentation and health and safety supplement as well as report on technical review of project documentation. The works were reported to the City Planning and Housing Authority of the City of Novi Sad, the expert supervision team was set up, the project manager was appointed and other requirements were met according to the Law on Planning and Construction.</p>
Price	39,582,274 dinars (VAT included)
Duration	three months and 15 days

Project title	8. Installation of BISIS library software system into the library of the Executive Council of the AP Vojvodina
Completion date	12/2006
Implementing party	Faculty of Natural Sciences, Novi Sad
Project Description	<p>The project implementation started in September 2006. The BISIS software system, version 3.1. was installed (catalogisation of monographies and serial publications, doctoral theses and articles; search of records via the Internet; procurement and ordering). The existing bibliographic records have been transcribed in UNIMARC format of BISIS system and a single base of bibliographic records in BISIS system have been set up. Librarians have been trained to use bibliographical material processing applications. The outcome of this project is introduction into the use of BISIS software system ver.3.1</p>

Price 493,000 dinars (VAT included)
Duration four months

Project title 9. Development and installation of an application to monitor sessions of the Executive Council of the AP Vojvodina

Completion date 04/2007

Implementing party PROZONE d.o.o. Novi Sad

Project Description

On the basis of the project „Intranet System for the Assembly and Executive Council of the AP Vojvodina", the technical documentation for development and installation of the application to monitor sessions of the Executive Council has been prepared. Application provides for creation of documents in electronic form, their monitoring, exchange, search and archiving. Major task of the application is submission, receiving and processing of documents which make the basis of the Executive Council sessions. Documents in electronic form have a central location. The system provides definition of business processes as well as control of execution of specific processes.

The application was implemented by means of client/server architecture. Server part is multiplatform-based (possibility of execution in Windows and Unix based operative systems).

The client part was developed so that standard web reader is used as a client. Server and client parts of application are based on open source technologies. Selected application server is open source and does not require additional licencing. The supplier provided the source code.

The application is independent from the database, i.e. the application installation is possible at different database management systems (DMS) without changes made to application source code.

The application supports operation in the following DMSs: PostgreSQL, MySQL, Microsoft SQL Server and Oracle. In the initial phase the system operates on Microsoft SQL Server database. The application supports interoperability with other platforms by means of open standards.

Users' application interface supports multilingual feature – the possibility of selection of the language in which it displays all messages for the user without need to change source or executive code. This application enables display of menus and messages in other languages in official use in work of authorities of the Autonomous Province of Vojvodina (Article 6 of the Statute of the APV) .

For the basic document types, (ASCII text, HTML, XML, Adobe PDF, and Microsoft Word, Excel and PowerPoint in versions 97-2003, RTF), there is possibility of splitting document into words, saving the document content and searching its content according to basic attributes of documents, their additional features, key words etc. in currently active document version.

Documents can be searched according to their attributes, types, attributes of different types of documents. The Executive Council sessions may be electronically monitored, with the possibility of active involvement of the Executive Council members in drawing up final minutes of the Executive Council session. It also enables entering of personal notes through web-interface for all participants in the Executive Council sessions and possibility for other participants to look into the content of those notes. These notes may be used in drawing up the text of the conclusion.

The application is currently being supplemented by the module for voting on each item on the agenda of the Executive Council session. The communication infrastructure of the local computer network of the Executive Council and the Assembly is used.

Price 4,784,900 dinars (VAT included)
Duration three months

Project title 10. Development and installation of the Portal of Public Services System of the Autonomous Province of Vojvodina

Completion date 04/2007

Implementing party PROZONE d.o.o. Novi Sad

Project description

On the basis of the project „Specification of public services information requests of the e-Vojvodina system", the technical documentation has been prepared for the development and installation of the Portal of Public Services System of the Autonomous Province of Vojvodina.

Portal of public services system represents "front gate" into a virtual information space, that is, services available to citizens and business entities and are provided by the administration. The major task of the Portal is to provide a single access point for all public services which are provided within the system of public services in the AP Vojvodina. In this way, a great number of public services, the existing ones or the ones to be developed, are integrated into one whole.

This project aims to develop and implement necessary modules which all together represent Portal of public services system. The implemented modules include:

- external access point (a part through which citizens and business entities have access to the system);
- internal access point (a part through which civil servants have access to the

- system);
- module defining user roles and assigning the access right;
- module maintaining the content;
- indexing and content storage server;
- module controlling the access to various contents;
- module supporting multilinguistic feature;
- development of public services register;

The Portal has been implemented in client/server architecture. The client part may use the most wide-spread web-clients (Internet Explorer and Mozilla) and does not require any additional installation on the client's part. Server part may be executed in Windows and Unix-based operative systems.

Server and client part are based on Open Source technologies.

Relational database management system is ANSI SQL compatible and may be executed in Windows and Unix-based operative systems.

The development platform has been selected so as to support previously specified requests such as: possibility of execution in Windows and Unix-based operative systems. The connection to the relational database management system is integrated into the development platform thus enabling standard method of access to different relational database management systems (Oracle, MS SQL, PostgreSQL, MaxDB).

The Portal may be accessed by three categories of users: citizens, business entities and civil servants.

The first two categories of users have access through the external access point, and the third category through the internal access point.

The external access point represents the front gate for citizens and business entities. At this access point users may view the Portal contents and search the indexed contents.

The Portal contents is organised into hierarchically arranged categories (services for citizens and services for business entities).

The contents that may be searched include those ones that are directly available at the Portal and within the websites of the registered public services.

Internal access point represents the front gate for civil servants. The access to this point is only possible for registered users via HTTPS protocol. The group of internal users has been classified into: system administrator, person responsible for publication of contents and civil servants. The administrator may register new users of all levels, organise their basic data as well as grant an access right to specific functions. The person responsible for publication of contents may register new public services, edit key words required for indexing, temporarily cancel registered public services from the Portal and publish contents directly available at the Portal and prepared by the civil servants. By this approach the responsibilities are hierarchically transferred to persons responsible for individual public services. The civil servant may prepare contents which will directly be published at the Portal, however he/she may not publish the contents.

Maximum load of the Portal envisages:

- 1000 simultaneous accesses from the external access point;
- 100 simultaneous accesses from the internal access point;
- 500 registered public services within the intranet Portal;
- 50 GB of indexed contents.

Price 4,537,100 dinars (VAT included)
Duration three months

Project title

Completion date
Implementing party
Project description

11. Procurement and installation of the server computer equipment

12/2006
Informatika, Belgrade
Purchase of six „Brand name“ servers for installation of all necessary services for the local computer network with the tape-storage device including eight-tape cartridge of 400/800 GB each, KVM switch and UPS devices.
Two-processor servers with SAS discs, RAID controllers and redundant supply and network cards.

Price 2,450,992 dinars (VAT included)
Delivery duration two months

Project title

Completion date
Implementing party
Project description

12. Providing the Executive Council meeting room with the portable computers

12/2006
Informatika, Belgrade
The Executive Council meeting room is already equipped with 22 „Brand name“ portable computers. These computers will be used for on-line monitoring of the Executive Council sessions. CA and Radius certificates have been installed to the computers since wireless access to the local computer network is used. The Executive Council members have also been provided with the webmail.

Price 2,442,600 dinars for 30 portable computers (VAT included)
Delivery duration two months

Project title	13. Services
Completion date	01/2007
Implementing party	PEC (Provincial Executive Council), INDOK, Novi Sad
Project description	Internal project was prepared first and then services for reaching the full functionality of the local computer network were implemented. This enabled: remote home access to the local computer network; permanent Internet access for each user; active domains at two servers for work within the network environment; the complete web traffic running through the PROXY server; DHCP server for dynamic IP address allocation to the computers in the network; WSUS system enabling automatic security update of the operative system and other software at all computers in the network; antivirus spam protection by licenced antivirus software with automatic centralised installation of new antivirus definitions and scheduled scanning; remote diagnosis of uninterrupted power supply device; Web hosting for the purposes of web presentations of provincial authorities with active IIS6 (Internet Information Server) and the support for PHP 5 and MySQL 5 base; FTP server as a possibility for an additional service for web presentations, also provided with installation of the eVojvodina Portal.
Price	No expenses (0 dinars)
Duration	one month

Project title	14. Procurement of CISCOWORKS Lan Management Solution Software and monitoring equipment for local computer network of the Assembly and the Executive Council of the APV
Completion date	01/2007
Implementing party	SAGA, Belgrade
Project description	CISCOWORKS LAN MANAGEMENT SOLUTION Software enables management and configuration of complete active equipment which is purchased in the first and second phase of the implementation of local computer network for the Executive Council of the Assembly. The existing active equipment to be managed by the required software includes: <ul style="list-style-type: none"> - central switch CISCO WS 506 – 1 pcs; - Internet module router CISCO 2811 – 1 pcs; - access server CISCO AS 5350 – 1 pcs; - redundant firewall CISCO ASA 5520 – 1 pcs; - Internet module switch CISCO 2960 24 10/100/1000 4 T/SFP – 1 pcs; - catalyst switch CISCO 2960 24 10/100 + 2 1000 BT- 17 pcs; - catalyst switch CISCO 2960 48 10/100 + 2 1000 BT – 44 pcs; - wireless communication device CISCO 1240 – 7 pcs for: <ul style="list-style-type: none"> - remote administration of active equipment; - collection and storage of all information about the active equipment operation; - review of reports on operation of active equipment; - automatic generation of messages by electronic mail to the system administrators in case of alerts; - protected access to the active equipment by means of accounts and passwords; - purchased „Brand name“ server for the software installation and one portable computer for active equipment adjustments.
Price	991,134 dinars (VAT included)
Duration	two months