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Research on Bulgarian Policies and Practices

WP 3: Research on National Policies
and Practices

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Research on Bulgarian Policies and Practices

WP 3: Research on National Policies and Practices

Version 1.0 (Final Deliverable 3.1)

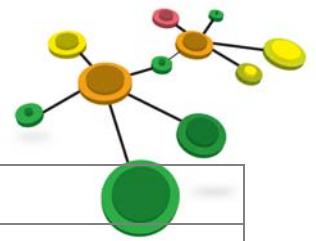
State of the Art National Report

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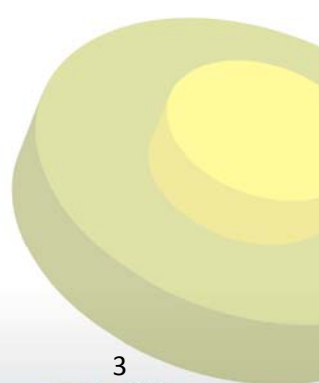


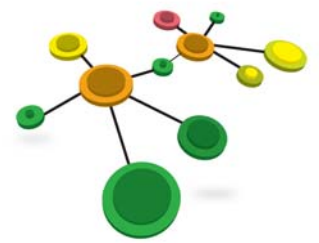
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ABBREVIATIONS

| | | |
|---------|---|--|
| AIS | - | Administrative Information System |
| CEN | - | European Committee for Standardization |
| CENELEC | - | European Committee for Electrotechnical Standardization |
| DNSP | - | Departmental Nomenclature of Services and Procedures |
| DNSSP | - | Departmental Nomenclature of the Stages of Services and Procedures |
| ETSI | - | European Telecommunications Standards Institute |
| EAS | - | Electronic Administrative Services |
| EU | - | European Union |
| IT | - | Information Technology |
| ID | - | Identity |
| ICT | - | Information and Communication Technology |
| ITIL | - | Information Technology Infrastructure Library |
| IP | - | Internet Protocol |
| ISO | - | International Organization for Standardization |
| LUNS | - | List of Unified Names of Services |
| OMG | - | Object Management Group |
| OASIS | - | Organization for the Advancement of Structures Information Standards |
| PA | - | Public Administration |
| PKI | - | Public Key Infrastructure |
| SOAP | - | Simple Object Application Protocol |
| SLA | - | Service Level Agreements |
| SOA | - | Service Oriented Architecture |
| URI | - | Unified Registry Identifier |
| URL | - | Uniform Resource Locator |
| UEEDE | - | Unified Environment for electronic Documents Exchange |
| UDDI | - | Universal Description, Discovery and Integration |

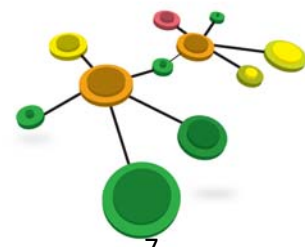
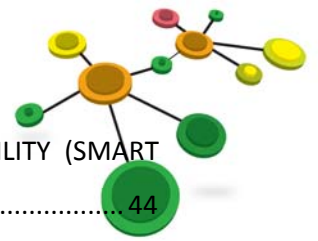


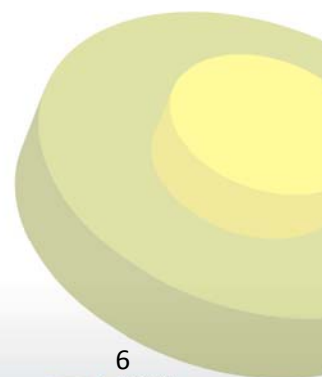
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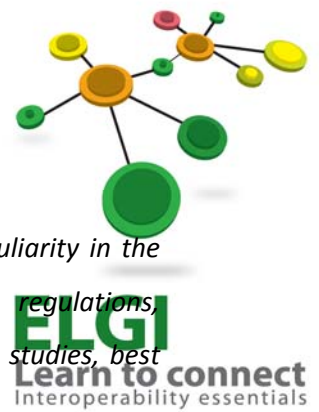
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INTRODUCTION

The aim of this document is to identify and summarize the national aspects and peculiarity in the field of interoperability for the partners' Countries (strategic frameworks, laws, regulations, implementation, specific requirements, organizational aspects, technical aspects, case studies, best practices, etc.).

The template is composed of five sections. Each of them is designed to receive and analyse all data considered preparatory to the final filling of the national dossier provided by the project and to prepare the learning materials for the course aimed to create a consistent common level of competence in the area of interoperability of online services.

Some sections require the filling out of open fields to answer, which, depending on the complexity of the latter are specifically limited to particular indications.

The first part of the template, related to more general information on the partner's Country in question, tends to make a rough estimate of the situation of citizens, companies and public administrations in order to identify the features of each Country involved in the project to understand dimensions and background of state of the automation in PA.

The second section focuses in particular on the regulatory and legal aspects that already exist or will help to create a list of legal changes on online services interoperability of each Country involved.

The third section focuses on the organizational aspects and the effects they have on PA structures and on the performance of the services provided. In addition, the goal is also to analyse the changes that have produced some valuable innovations.

The fourth section deals with the technological aspects, not only with the identification and exploitation of the best solutions in the field of innovation processes within the PA, but at the same serves to detect unsuccessful attempts, analysing the strengths and weaknesses of a given action taken in each case.

The final section includes a detailed description of a success example of a best practice and an in progress experiment of interoperability in each Country.

1. STATISTICS ABOUT BULGARIA

1.1 COUNTRY

Name of the Country

Republic of Bulgaria

Comments

With a territory of 110,994 square kilometers, Bulgaria ranks as the 14th-largest country in Europe.

Others information

Bulgaria is a unitary state. It includes 27 provinces and a metropolitan capital province. The provinces subdivide into 264 municipalities.

1.2 POPULATION

Population

According to the 2011 census, the population of Bulgaria is 7,364,570 people.

Comments

A total of 41.2% of all Bulgarians who took part in the 2011 census did that on the Internet. This is the highest percentage among the EU countries which had a census last year. A total of 45% of the households have Internet access. A total of 20.3% received information from the web page or website of public administration in 2011, while the share of citizens who are returning filled in forms online is 10.1%.[1]

1.3 PUBLIC ADMINISTRATIONS

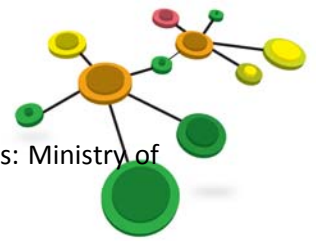
Estimate of public organizations on the national territory

The number of administrative bodies in Bulgaria is 546.

Comments

This includes:

- 16 ministries;
- 42 agencies;
- 28 provincial administrations;
- 264 municipality administration;



- the rest are regional subsidiary bodies of central administrative bodies (such as: Ministry of Health, Ministry of Ecology, Revenue Agency, Register Agency, etc.).

1.4 COMPANIES

Estimation of the firms in the Country

According to statistics the number of active companies in 2009 is 327 647.

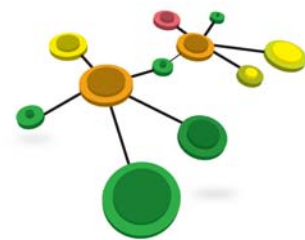
Percentage of companies listed on the web

About 70 % - data from European project ENLARGE.

Comments

They are about 500 000 companies registered in the National electronic register.

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2. REGULATORY AND LEGAL FRAMEWORK

2.1 LEGISLATION - ESSENTIAL ELEMENTS

- Law 1 (in force as of 13 June 2008, promulgated in SG No 46 of 12 June 2007, last amendment 16 October 2009) Law on Electronic Governance;
- Law 2 (in force as of 06.10.2001, promulgated in SG No34 of 6 April 2001, last amendment 21 December 2010) Law on Electronic Document and Electronic Signature;
- Law 3 (promulgated in SG No41 of 22 May 2007, last amendment 29 December 2011) Law on Electronic Communications;
- Law 4 (in force as of 24.12.2006, promulgated in SG No51 of 23 June 2006, last amendment 29 December 2011) Law on Electronic Commerce of 2005;
- Law 5 (promulgated in SG No19 of 9 March 2010) Law on Access to Spatial Data of 2010;
- Law 6 (in force as of 01.01.2002, promulgated in SG No1 of 4 January 2002, last amendment 29 December 2011) Law on Protection of Personal Data;
- Law 7 (in force as of 25 November 2008, adopted by the Council of ministers Decree No 279 of 17 November 2008, last amendment 30.12.2010) Ordinance on General Requirement for Interoperability and Information Security of 2008.

2.2 LEGISLATION - A BRIEF DESCRIPTION

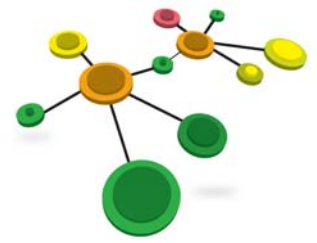
Law 1: (innovations introduced)

The Law on eGovernance regulates three main groups of relations, namely:

- the ways of providing services to citizens electronically;
- the relationships related to the internal exchange of information and documents, simultaneous movement of paper and electronic documents, assigning them creation, storing and archiving of electronic documents;
- relations associated with the automated exchange of electronic documents between administrative authorities.

In its Chapter Four “Interoperability and Information Security” the Law enacts:

“Article 43 Requirement for Interoperability: Provision of internal electronic services and exchange of electronic documents between the administrative bodies



shall be carried out in conditions of interoperability.” [2]

Law 2: (innovations introduced)

The Law on Electronic Document and Electronic Signature enacts that the legal implications of electronic form of the statements are identical with the ones of a written one, respectively, the electronic signature is equal to the handwritten one. The law established the legal foundation for the security of electronic exchanges with a view to validity and content integrity of electronic statements.



Law 3: (innovations introduced)

The Law on Electronic Communications regulates the public relations realized by provision of electronic communications. The objectives of this Law are: to create the indispensable conditions for the development of competition in the provision of electronic communications, to support the development of the internal market for electronic communications and to create conditions to ensure the integrity and security of public electronic communications networks.

Law 4: (innovations introduced)

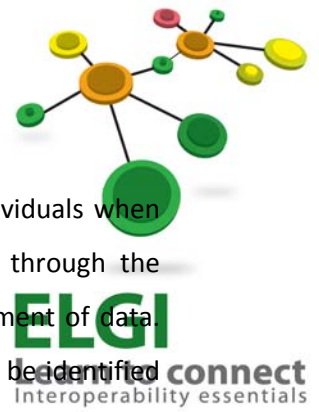
The Law on Electronic Commerce regulates public relations connected with the implementation of electronic commerce.

The e-Commerce within the meaning of this Act is to provide the services of the Information Society. The services of the Information Society are those services, which are usually onerous and which are provided at a distance by electronic means upon an explicit statement by the service recipient.

The Service Provider is a natural or legal person providing services of the Information Society. The Recipient of services is a natural or legal person who uses services of the Information Society for professional or other purposes, including for purposes of seeking information or access to it.

Law 5: (innovations introduced)

The Law on access to spatial data aims to create conditions for access to spatial information, providing services and implementing Directive 2007/2/EC of the European Parliament and the Council of Europe on March 14, 2007 on establishing an Infrastructure for Spatial Information in Europe (INSPIRE).[3]



Law 6: (innovations introduced)

The Law on Protection of Personal Data regulates the protection of the rights of individuals when processing their personal data. The purpose of this Law is to ensure the privacy through the protection of individuals against improper handling of related data in the free movement of data. The personal data is any information relating to an individual who is identified or can be identified directly or indirectly by an identification number or one or more specific attributes.

Law 7: (innovations introduced)

The Ordinance on the general requirements for Interoperability and Information Security [4](in force as of 25 November 2008, adopted by the Council of ministers Decree No 279 of 17 November 2008) provides for:

- the general requirements for interoperability and network and information security for the needs of the provision of internal Electronic Administrative Services and the exchange of electronic documents between the administrations;
- the keeping, storage and the access to the Register of the standards;
- the manner of accreditation of the persons referred to in Article 57 (1) of the Law on eGovernance and the requirements for their activity;
- the methods for assessing the conformity to the requirements for interoperability and network and information security.

2.3 SUBJECTS INDICATED OR INVOLVED

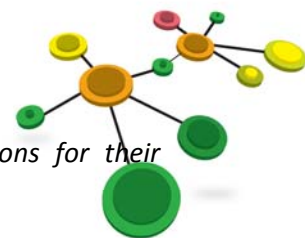
Organization 1

Ministry of Transport, Information Technology and Communications

According to the Law on eGovernance the Minister of Transport, Information Technology and Communications shall exercise overall control over the compliance with this Law. The Article 60 “Control for Interoperability and Information Security” enacts:

“The Minister of Transport, Information Technology and Communications shall exercise control over the compliance with the requirements regarding information security and interoperability.

The Minister of Transport, Information Technology and Communications may carry out inspections of the information security and interoperability of a given information system or of the measures taken by the administrative body by



persons empowered by him/her, as well as may give prescriptions for their improvement”.



2.4 MAIN INSTRUMENTS ACTIVATED AND/OR USED

Tool 1

The Standards Register [5]

The Article 47 of the Law on eGovernance states:

“(1) The Ministry of Transport, Information Technology and Communications shall keep a Standards Register as an integrated centralised electronic database administered by an information system containing the technical standards and their applicability.

(2) The technical standards, which have to be applied by the administrative bodies in case of provision of Electronic Administrative Services and for ensuring the interoperability, information security and automatic exchange of information and documents between administrative bodies shall be entered in the Standards Register. “

Tool 2

The Information Objects Register [6]

The Article 48 of the Law on eGovernance states:

“(1) The Ministry of Transport, Information Technology and Communications shall keep an Information Objects Register as an integrated centralised electronic database administered by an information system containing description of all information objects by using defined technical standard.

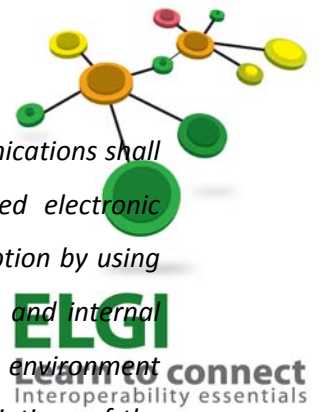
(2) Information object shall mean single or composite data collected, created or processed in fulfilment of the competences of an administrative body.

(3) The entry into, the keeping of and the access to the Information objects register, as well as defining of the standard, referred above, shall be laid down in the Ordinance on the Information objects and electronic services registers adopted by the Council of Ministers.”

Tool 3

The Electronic Services Register [7]

The Article 50 of the Law on eGovernance states:



“(1) The Ministry of Transport, Information Technology and Communications shall keep an Electronic Services Register as an integrated centralised electronic database administered by an information system containing description by using defined technical standard of all Electronic Administrative Services and internal Electronic Administrative Services provided through the integrated environment for data exchange, and in accordance with the standardised descriptions of the information objects entered in the Information objects register.

(2) The entry into, the keeping of and the access to the Information objects register as well as the defining of the standard, referred above, shall be laid down in the Ordinance on the Information objects and electronic services registers adopted by the Council of Ministers.”

Tool 4

Conformity Assessment [8]

The Article 57 of the Law on eGovernance states:

“(1) The conformity of the information systems introduced by the administrative bodies with the established legal requirements shall be attested by persons accredited by the Minister of Transport, Information Technology and Communications.

(2) The methodology, the rules for carrying out the assessment, the procedure for accreditation of persons referred above and the requirements to their activity shall be laid down in the Ordinance.

(3) For carrying out of the accreditation, the persons concerned shall pay state fee established in a tariff approved by the Council of Ministers. Where a State body or administration is accredited, it shall not pay state fee.

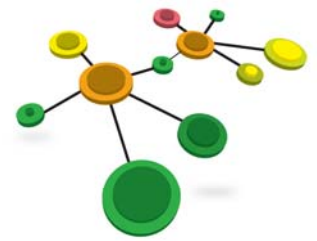
(4) Remuneration shall be due for carrying out the conformity assessment.”

The Article 58 of the Law on eGovernance (named “Lists of accredited organisations and of certified systems”) states:

“(1) The Ministry of Transport, Information Technology and Communications shall keep a list of the persons accredited in accordance with Article 57, paragraph 1.

(2) The Ministry of Transport, Information Technology and Communications shall keep a list of the certified information systems.

(3) The Minister of Transport, Information Technology and Communications shall ensure free and free of charge access to the lists referred above.”



Tool 5

The Uniform Environment for Exchange of Electronic Documents [9]

The Article 41 of the Law on eGovernance states:

“The Uniform Environment for Electronic Documents Exchange (UEEDE) is a manageable environment for standardized exchange of documents, entered in the Register of the Information Objects, among the information systems in the administration for the purposes of the eGovernance.

Internal Electronic Administrative Services shall be provided compulsory through the integrated environment for exchange of electronic documents.”



2.5 NATIONAL INTEROPERABILITY FRAMEWORK

The Bulgarian National Interoperability Framework for Governmental Information Systems [10] is adopted by Decision No 482 of Council of Ministers of 28 June 2006. The Ministry of Transport, Information Technology and Communications is responsible for implementation of the Framework.

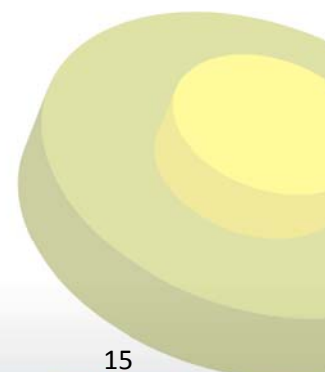
The document is developed in compliance with the “European Interoperability Framework for pan-European eGovernment Services” version 1.0 published in November 2004.

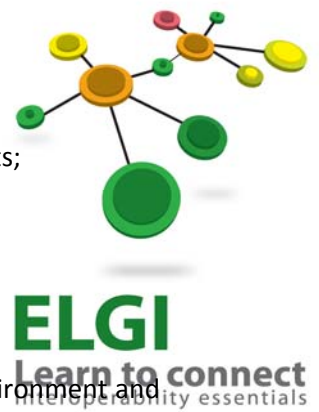
The general objectives of the unification and rationalization of the Information infrastructure of the governmental information systems can be formulated as follows:

- social efficiency, minimization of the capital investments and the exploitations costs;
- equal treatment of the participants in the exchange;
- security, confidential exchange, personal data protection, intellectual property protection;
- homogeneity and interoperability of the information structures – basis for macro-management of the cybernetic principles;
- integration in the global and regional information structures.

From practical point of view the pointed out overall objectives can be achieved through:

- invariance of the access to the systems and their exchange with the environment;
- compatibility of the processes and the data flows;
- integration of the applications;
- automation of the processes of information exchange;
- multiple use of single input of data (data blocks);



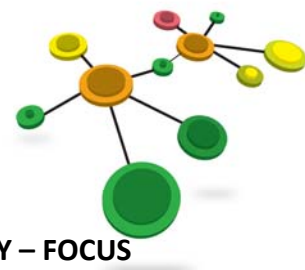


- multiple use of already developed or bought software components and products;
- use of already built information systems;
- scaling of the decisions;
- transferability and independence from the platforms;
- possibility for flexible readjustment of the procedures after changes in the environment and the requirements.

2.6 EGOVERNMENT ROADMAP, COUPLED WITH GOALS, VISION AND STRATEGY

A new revised Strategy for Electronic governance in Republic of Bulgaria was adopted by the Council of Ministers in January 2011. Item 6.4 of this document underlines the role of interoperability and the basic position of the National Interoperability Framework as “guarantee for establishment of a unified information and communication infrastructure.”

On the basis of the above mentioned document, a Roadmap for realization of the strategy for the period of 2011 – 2015 was adopted. In its chapter II “Technological Framework” the document points to the Interoperability, including “creation of a system for monitoring of interoperability in Administrative Information Systems”.



3. ORGANIZATIONAL ASPECTS

3.1 ORGANIZATIONAL ADVANTAGES OF ONLINE SERVICES INTEROPERABILITY – FOCUS ON PA VS CITIZENS-BUSINESS RELATIONSHIP



Transparency

The transparency of the Electronic Administrative Services provision is ensured by the obligation of the provider of Electronic Administrative Services to ensure access to the actual state of the provided service. (Article 12 of the eGovernance Law).

The actual state is equivalent to the unified stage of the service or procedure. Article 65 of the Ordinance on the internal circulation of electronic documents and documents in hard-copy form in the administrations states: “For each service or procedure whose execution has started, a status of execution shall be maintained covering the following data:

- unique register identifier of an initiating document – a unique register identifier of a document registered in the official documentary register causing the beginning of the service or procedure;
- unique register identifier of a service or procedure - a unique register identifier of service or procedure, under which it has been included in the departmental nomenclature of services or procedures;
- executed stages – a list containing a set of objects of type “task” designed for control over the relevant stages whose execution has already finished in the order specified in the list;
- non-executed stages – a list containing a set of objects of type “task” designed for control over the relevant stages whose execution is forthcoming, in the order specified in the list;
- cancelled stages – a list containing a set of objects of type “task” designed for control over scheduled stages, removed from execution.

In the above mentioned lists of objects of type “task” the following data shall be maintained:

- name and short description of a task - the name of a stage of service or procedure whose execution shall be controlled by the task;
- expanded description of a task - the presentation of a stage and additional information detailing the conditions for the execution of a stage, specific requirements to the final results of its execution, which shall be controlled by the task, etc;

- unique register identifier of a stage - the unique register identifier of a stage for a service or procedure shall be entered whose execution shall be controlled by the task;
- executor of a task - the executor of a stage whose execution shall be controlled by the task;
- date of the scheduled beginning of the task execution - the calculated time for beginning the execution of a stage in accordance with the general duration of the procedure for delivery of a service or procedure and the duration of the previous stages;
- date of the scheduled finishing of the task execution - the calculated time for finishing the execution of a stage in accordance with the general duration of the procedure for delivery of a service or procedure, and the duration of the previous stages;
- date of the actual beginning of the task execution - the time of finishing the previous stage in executing the service or procedure;
- date of the actual finishing of the task execution - the time of finishing the operation for execution of the stage.”

Monitoring of responsibilities

The above mentioned obligation of the provider of Electronic Administrative Services to ensure access to the actual state of the provided service meets also the requirements for monitoring of responsibilities of the provider, including the personal responsibility of public servants.

According to the Ordinance for electronic administrative services, the service provider must provide consumers with information about the current status of the performed service. This is done because the sender of an electronic request for service receives ID and password. Through these identifiers the user obtains from the site or portal of appropriate administrative authority access to the file that stores the current status of the service in a unified form.

Validation and better data management

The execution of the requirements for validation and better data management is realized by the obligation of administrations to use only unified data in the Administrative Information Systems, i.e. data with uniform names and definitions. The definitions of the unified data must be registered in the Register of registers and data.

There are 3 types of unified data that are maintained in the Bulgarian Public Administration: Registers of Unified Data, Packages of Unified Data and Text of Unified Data.

Currently, the Bulgarian administration maintains over 180 Registers; annually, approx. 5 new Registers are defined along the course of the development of the legislation. The Registers represent a 'network', as Registers include references to other Registers, or contain data that is collected and stored in other Registers.

The Register of registers and data provides the register context ensuring that data is clearly and unambiguously interpreted, and further, provide a unique Register identifier for data, which allows machine processing identical to manual processing.

The Public Administration works with unified data that is defined in Packages according to rules applicable within the package, e.g. Package of Customs Tariffs or Package of Administrative Job Positions. The main difference between Packages and Registers is that Packages change as a whole (new version), whereas in Registers single elements change.

The maintenance of Package definitions is carried out through the Register of registers and data in the section 'Package Definitions of Data'. The whole package being a Register component is a subject to entry. For every particular type of data package a XML-presentation is defined in the form of e-Document, registered in the Register of information objects.

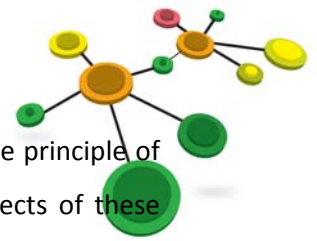
The text of unified data is usually definitions of concepts, structured by the scheme 'Name / Extended description'. As a matter of fact, many concepts in the Bulgarian legislation have multiple definitions and every single definition has its own meaning that applies to a specific area, to which the normative text containing the relevant definition refers to.

This fact must be considered when defining these data for machine processing. Unique identifiers need to be generated that correspond to different interpretations of concepts, presented with one and the same name.

Uniqueness of data processed

The execution of the requirements for uniqueness of data processed is realized with the above mentioned obligation for using unified data registered in the Register of registers and data.

Administrative load reduction (Time savings)



A major factor for time saving (especially for citizens, but also for administration) is the principle of single collection and creation of data grounded on the eGovernance Law. The subjects of these principles are the figure of the Initial Data Administrator and the obligations for notification ex officio and for automatic transmission.



Concerning these issues the Law states:

“The administrative bodies, the persons charged with public functions and the organisations providing public services cannot require from the citizens and organizations to produce or to prove data, which have already been collected or created; they must collect such data ex officio from the initial data administrator.

The initial data administrator shall be the administrative body, which by virtue of law collects or creates data about a citizen or an organisation for the first time, and amends or deletes such data. He shall provide access for the citizens and the organizations to all the information collected about them.

The initial data administrator must send ex officio the data to all administrative bodies, to persons charged with public functions and to organisations providing public services, which are charged on the basis of a law to keep these data and have expressed will to obtain them.

The notification and the request for data transmission shall be carried out automatically by electronic means as internal administrative service.”

Administrative load reduction (Costs savings)

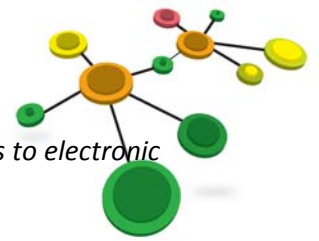
The above mentioned principle of single collection and creation of data is also a major factor for achievement of costs savings.

Better accessibility to online services (multilingual systems, easily of access and querying)

The better accessibility to online services is ensured by the General Requirements for provision of electronic administrative services, described in the Chapter Two of the Ordinance on the electronic administrative services. The articles 2 and 3 of this ordinance state:

“The provider of Electronic Administrative Services must proclaim the provided services in an understandable and accessible manner.

The provider must deliver detailed information concerning each electronic administrative service offered freely and free of charge, including in the provider’s territorial units and municipalities. This information shall be provided via the



provider's official Internet site and via the Integrated portal of access to electronic administrative services.

The providers shall publicly proclaim their official Internet site.

The Minister of Transport, Information Technology and Communications shall construct and maintain an Integrated portal for access to electronic administrative services.



The Electronic Administrative Services shall be provided in accessible manner, including for persons with disabilities.

Via a web-interface the services shall be provided online, in a way convenient for the users. If possible in terms of technology, online mode of operation has to be also ensured for all other methods of provision of electronic administrative services."

Better accessibility to documents

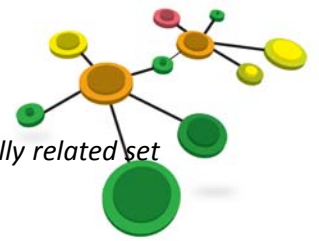
The execution of the requirements for better accessibility to documents is realized by the obligation for Administrative Information Systems to create and maintain specific set of data named "correspondence". The articles 41 – 44 of the Ordinance on the internal circulation of electronic documents and documents in hard-copy form in the administrations state:

"The correspondence is a set of documents linked thematically. In the Administrative Information Systems, a correspondence shall be created on the grounds of a document:

- by means of which an electronic administrative service has been requested, including if the document itself is in hard-copy form, but a desire for electronic delivery of the service has been explicitly declared ;*
- by means of which, a procedure of processing shall be initiated.*

In the first case the correspondence shall be created immediately after the registration in the official documentary register of the document – a service request. In the second case the correspondence shall be created in accordance with a procedure regulating the processing of the relevant document, as described in the internal rules of the administration. In all cases, a directory to link the document to the correspondence itself shall be maintained.

The correspondence shall be always created when executing an electronic administrative service. A correspondence may not be created when executing an administrative service requested by a document in hard-copy form, if not explicitly

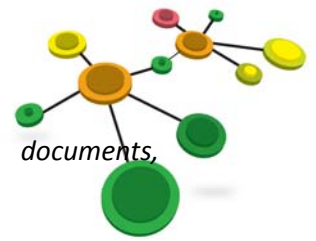


requested to obtain the service electronically and if in the thematically related set of documents there are not more than two documents.

The correspondence shall comprise three sections - official, internal and control sections. Each of the sections shall be presented by a list of links to documents in the Administrative Information Systems, classified in the relevant section.

For each correspondence in the Administrative Information Systems the following data shall be maintained:

- *name of the correspondence, indicating the thematic purpose of the documents in the correspondence; the name shall be formed in accordance with the internal rules of the administration;*
- *explanation to the correspondence – an expanded presentation of the thematic purpose of the documents in the correspondence; the explanation shall be entered, if appropriate, in accordance with the internal rules of the administration;*
- *unique identifier of the correspondence coinciding with the unique register identifier of the document, on the base of which the correspondence has been created;*
- *identifier of access to the correspondence – it shall, independently or in combination with another parameter, ensure personalized access via Internet to the contents of the official section of a correspondence; the identifier shall be automatically generated when creating a correspondence;*
- *official section - section of a correspondence, where the following shall be classified:*
 - *the documents accepted by the administration;*
 - *the documents issued by the administrative body or created in the administration, with a complete cycle of processing;*
 - *acknowledgement of receipt of the application and a message concerning an irregularity and incompleteness of the request for provision of an administrative service, with instructions and time for their elimination;*
- *internal section – it's a section of the correspondence, where the documents created in the administration have been classified, with still*



uncompleted cycle of processing, auxiliary and other documents, pertaining to the subject matter of the correspondence;

- *control section - it's a section of the correspondence, where only documents, which have been taken out of the official section due to error or another reason shall be classified;*
- *time of creating the correspondence – it shall be automatically registered when creating the correspondence and shall not be subject to subsequent changes;*
- *author of the correspondence – the data identifying by means of Administrative Information System the servant creating the Administrative Information System; the data shall be automatically registered; they shall not be subject to subsequent changes.”*



Reusing of existing IT infrastructures, services and their monitoring (report, statistical analysis, etc.)

The reuse of existing Information Technology assets is ensured by the mandatory use (which is regulated by the eGovernance Law and its ordinances) in the Administrative Information Systems of information objects (including: terms, nomenclatures, simple data elements of type “value”, segments (complex data elements) and documents) and also of services / procedures registered in so called registers for interoperability, as follows:

- the Register of registers and data;
- the Register of information objects;
- the Register of electronic services.

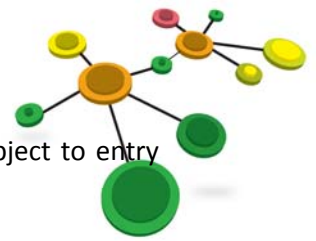
Furthermore, the methods of reuse of existing Information Technology assets are based on standards related to interoperability, which are registered in the Register of standards.

Also, in order to ensure identical human perception of electronic documents, issued by various Administrative Information Systems, it is obligatory to use certified programming applications for viewing and editing of any such document, registered in the List of certified systems and products.

Homogeneity / compliance of online services' front-end provided by public organizations

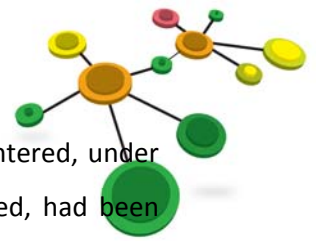
The homogeneity / compliance of online services' front-end, provided by public administration is ensured by the obligatory use of the above mentioned Register of electronic services.





The circumstances concerning an electronic service of the “primary service” type, subject to entry into the respective section of the Register of the electronic services, are as follows:

1. name of the electronic service – the full name of the primary electronic service shall be entered, whereby it is unambiguously individualized; the name shall be unique for services with “usable” status;
2. purpose of the electronic service – a brief text explanation of the purpose of the electronic service shall be entered;
3. status of the electronic service – indication shall be entered concerning the opportunity for the primary electronic service to be provided by the administrative bodies, by the organizations, providing public services and by the individuals, discharging public functions and to be used in regulations, including in the definitions of complex electronic services; the possible values are “usable” or “unusable”;
4. Internet site for access to the electronic service batch - the electronic address (URL) of the Internet site shall be entered, from which access to the content of the batch of the primary electronic service is taking place;
5. unique register identifier of administrative service – the unique register identifier shall be entered, issued upon entry of the administrative service, which corresponds to the electronic service in the list of unified names of the administrative services, kept in accordance with the Ordinance under Article 5a, paragraph 1 of the Law on Administration; this fact shall be entered, where the electronic service is provided by administrations;
6. unique register identifier of application - the unique register identifier shall be entered, under which the segment, whereby the data in the application for the electronic service is presented, is registered in the Register of the information objects;
7. unique register identifier of reviser - the unique register identifier shall be entered, under which an application is registered in the lists of certified information systems, enabling full, precise and true revising of the content of the data in the application for the electronic service;
8. list of unique register identifier of responses – a list of unique register identifiers shall be entered, under which the documents, whereby the data is provided in response to an applied electronic service, are registered in the Register of the information objects, and where the result of the service provision is an administrative act, manifested in an act of entry into a public register, the unique register identifier of the register shall be entered;



9. unique register identifier of refusal – the unique register identifier shall be entered, under which the document, whereby provision of the electronic service was refused, had been registered in the Register of the information objects;
10. list of providers - a list shall be entered of data on the administrative bodies, the organizations, providing public services and of the individuals, discharging public functions, who provide the electronic service;
11. list of recipients of internal electronic administrative service - a list of data shall be entered for the administrative bodies, the organizations, providing public services and of the individuals, discharging public functions, who by virtue of regulation are entitled to access to the data, provided by the internal electronic administrative service and the conditions, under which they may obtain it.

In case of registering of some service in the register, all administrations that provide this service (regardless of its type and the size of the administrative body) are obliged to use its “front-end” details.

Capability to provide and manage online payment services by online outlays

Chapter Five “Method of Electronic Payments in the provision of Electronic Administrative Services” of the Ordinance on the Electronic Administrative Services regulates the online payment as follows:

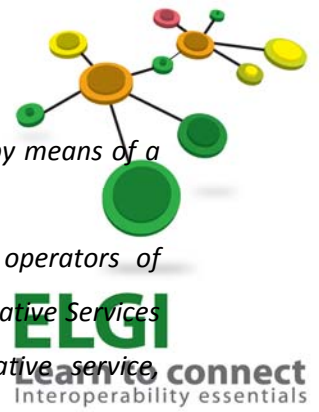
“The providers of Electronic Administrative Services must accept payments for stamp duties, taxes and other public and private-law obligations in connection with the Electronic Administrative Services provided through:

1. money transfers, and
2. electronic payment instruments.

The providers of Electronic Administrative Services must accept advice of payment order in connection with an electronic administrative service, as an electronically signed document of the type “Advice of payment order” listed in the register of information objects.

The Minister of Transport, Information Technology and Communications shall agree the document mentioned above with the Bulgarian National Bank prior to its listing in the register of information objects.

The recipients of Electronic Administrative Services shall obligatorily indicate in the ordering document the unique register identifier of the service in accordance



with Article 16, paragraph 4, except in case the payment is made by means of a bank card via Internet through an integrated web-based application.

The commercial banks, branches of foreign banks and system operators of payment systems must send to the providers of Electronic Administrative Services advice of each ordered payment for the electronic administrative service, regardless of the method of payment.

Sending of the electronic document to the provider of Electronic Administrative Services shall be accomplished via the integrated environment for document exchange.

The providers of Electronic Administrative Services must ensure the possibility of payment by means of bank cards via publicly accessible web-based application for the delivery of application concerning electronic administrative service or the payment of public or private law obligations to the provider. This possibility shall be also provided via the integrated portal for access to electronic administrative services.

The possibility for paying electronically a tax, charge and other public or private-law obligation to the providers, not related to a specific electronic administrative service, shall be listed as independent service in the register of electronic services and in the list of unified names of administrative services, in accordance with the Ordinance.

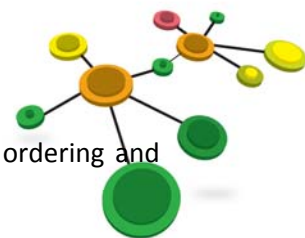
The provider of Electronic Administrative Services must provide in the provider's official Internet site an application - calculator, enabling the services recipients to calculate the amount of the taxes and charges due, connected with the electronic administrative services, and to create a formalized document containing detailed data about the payment calculated.

The Minister of Transport, Information Technology and Communications and the Governor of the Bulgarian National Bank shall issue a joint instruction concerning the application of this Chapter, after consultation with the Minister of Finance.”

Citizens collaboration and e-participation

The issues related to the citizens collaboration and e-Participation are not treated in the Bulgarian legal framework for eGovernance, related to the interoperability.

Multi-channel PA services



The Bulgarian legal framework for eGovernance provides the following channels for ordering and receiving electronic services from public administration:

- by means of Web-based application implementing standardized protocol;
- via the Unified Environment for electronic Documents Exchange (UEEDE);
- via e-mail;
- on optical, magnetic or another carrier.

The electronic services can be ordered through the Integrated portal for access to electronic administrative services.

3.2 ORGANIZATIONAL ADVANTAGES OF INTEROPERABILITY OF ONLINE SERVICES – FOCUS ON PA VS PA RELATIONSHIP

Improved circulation / exchange / delivery of data and information between PA organizations

Article 2 “Single collection of data” states:

“(1) The administrative bodies, the persons charged with public functions and the organisations providing public services cannot require from the citizens and organizations to produce or to prove data, which have already been collected or created; they must collect such data ex officio from the initial data administrator.

“(2) The initial data administrator shall be the administrative body, which by virtue of law collects or creates data about a citizen or an organisation for the first time, and amends or deletes such data. He shall provide access for the citizens and the organizations to all the information collected about them.”

Article 3 “Notification ex officio” states:

“The initial data administrator must send ex officio the data to all administrative bodies, to persons charged with public functions and to organisations providing public services, which are charged on the basis of a law to keep these data and have expressed will to obtain them.”

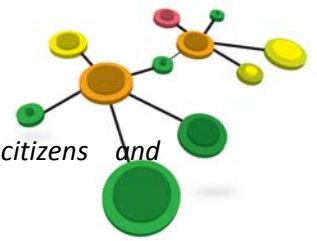
Article 4 “Automatic Transaction” states:

“The notification and the request for data transmission under this Chapter shall be carried out automatically by electronic means as internal administrative service.”

Article 40 “Obligation for exchange by electronic means” states:

“The administrative bodies shall be obliged to provide to each other internal Electronic Administrative Services related to fulfilment of their competences and

to the provision of Electronic Administrative Services to citizens and organisations.”



Responsibility

With regard to the application of the principle of single collection and creation of data, founded in the eGovernance Law, in the relationships between public administrations the so called primary data administrators bear an exclusive responsibility. In accordance with articles 3 and 4 of this law they are obliged not only to ensure actuality and integrity of such data, but also must ensure the dispatch *ex officio* of the data to all administrative bodies, to persons charged with public functions and to organisations providing public services, which are charged on the basis of a law to keep these data and have expressed will to obtain them.

The notification and the request for above mentioned data transmission shall be carried out automatically by electronic means as internal administrative service.

Validation / data processing

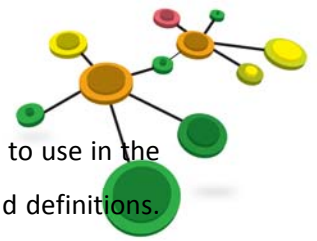
All data exchange between public administration bodies must be realised as internal administrative service through the UEEDE. All exchanged documents are validated by the UEEDE-server, which verifies their compliance with the registration in the Register of information objects.

That applies also to the exchange of unstructured content (letters, images, graphics, etc.). In this case the registered internal service named “Exchange of unstructured content” is realized. The unstructured data must be wrapping up into the registered document named “Container for transport of unstructured data”.

The validation of electronic documents is carried out by the Communication Server of UEEDE. The Communication Server decrypts the received message through its private key from the transport certificate and after that through specialized parser makes a comparison of XML-structure of the document with the corresponding record of the document structure in the Register of information objects. Upon determining of concurrence the Communication Server encrypts the document with the public key of the Communication Client-addressee and sends the encrypted message to it.

Uniqueness of data processed

Analogous to the exchange between administration and citizens the uniqueness of data processed in



the public administrations relationships is ensured by the obligation of administrations to use in the Administrative Information Systems only unified data, i.e. data with uniform names and definitions. The definitions of the unified data must be registered in the Register of registers and data.



Administrative load reduction in terms of time savings

One of the major factors for achieving serious time saving in the interconnections between public administrations is the automation of the sending and receiving of structured and unified documents. These documents are treated as request and answer of internal electronic administrative services.

All exchanges of information between administrations in carrying out their functions under the regulations shall be treated as internal Electronic Administrative Services and performed through the exchange of structured documents (requests and replies / rejections). Even the exchange of unstructured documents is done by internal electronic administrative service named 'Exchange of unstructured electronic content'.

Administrative load reduction in terms of Administrative load reduction in terms of costs savings

The main source of cost savings in the interconnections between public administrations can be the exchange of all documents as internal administrative service through the UEEDE.

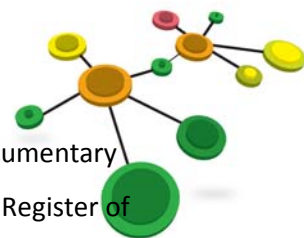
This can be done without human participation, as the information systems of one administration launches an internal electronic administrative service and sends an application signed by the official certification system. The other administration fulfils the service and sends back an electronic document-result, also signed by the official certificate.

Moreover, the structured documents are delivered and received by the respective Administrative Information System without any human participation. The unstructured documents (letters, images, graphics, etc.) can be addressed automatically to the Administrative Information System of the recipient, which also provides some cost savings.

This is due to the nomenclature of the internal documents, which in turn is related to the nomenclature of the procedures.

Documents' accessibility

The improvement of documents accessibility in the interconnections between public administrations



can be achieved by virtue of the unified registration of the documents in the official documentary registers of Administrative Information Systems (these registers must be entered in the Register of registers and data).



In the official documentary register, the following circumstances shall be entered for each registered document:

- time of entry - data generated automatically concerning the time of the entry in the register;
- executor of the entry - generated automatically concerning the name and system identifier of the servant making the entry or, in the case of automatic registration – the Administrative Information System (AIS) unique register identifier, under which the AIS has been entered in the list of certified systems;
- unique register number of a document generated upon its registration in the official documentary register;
- date of receipt or signature of a document; the unique register number and the date of receipt or signature of the document shall form the unique register identifier of the document issued upon its registration;
- unique register identifier and name of type of the registered document, under which this type of document has been entered in the departmental nomenclature of the types of documents.

Reusing of existing infrastructure and systems

The issues concerning the reusing of existing infrastructure and systems are not provided for in the legislation for e-Governance.

Homogeneity / compliance of online services' front-end delivered between public organizations

Analogous to the delivery of Electronic Administrative Services to citizens and businesses the homogeneity / compliance of online services' front-end, delivered between public administrations is ensured by the obligatory use of the Register of electronic services.

In the Register of electronic services the following has been recorded: the incoming electronic order for service, the electronic document - result of execution of the service, and document - waiver of performance of service for any reason. It also contains unified stages that make up and a list of service providers. Thus, one service, performed by different administrations, appears to the user in



the same way. For their part, the administrations organize internal workflows related to the service implementation, depending on the specific peculiarities, but maintain the same interface behaviour.



Definition and adoption of precise expertise

One of the factors for ensuring of definition and adoption of precise expertise in the interconnections between public administrations is the registration of exchange through the UEEDE.

Articles 41 – 44 of the Ordinance for requirements to the UEEDE state:

“Every procedure for a document exchange through UEEED must be registered automatically. The minimum content of the registered data includes:

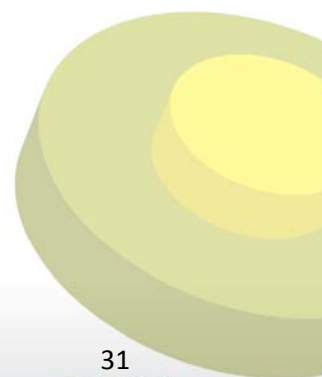
- *the Unique Register Identifier of a document;*
- *the Unique Register Identifier of the sending participant;*
- *the Unique Register Identifier of the receiving participant;*
- *the time of sending of the document by the Communication Client of the participant who has sent the document;*
- *the time of receipt of the document by the Communication Client of the participant, who has received the document;*
- *the mode of sending – it is noted whether the document is sent:*
 - through UEEED;
 - to the e-mail address of the participant – receiving the document through UEEED;
 - the sending has been impossible with the means of the UEEED.

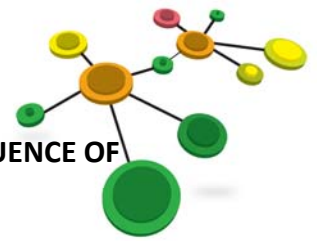
The content of the documents transmitted through UEEED is not a subject to registration. The registered data are not a subject to deletion or correction. The data must be stored with no limitation of the time period.

For every access to the registered data, the following information shall automatically be registered:

- *data, identifying through AIS the person who has performed the access;*
- *the time of the sign in access mode;*
- *the time of the sign off access mode;*
- *the type of the data – under Article 28 or Article 41.*

The UEEDE shall ensure means for analysis of the registered data.”





3.3 CHANGES IN ORGANIZATIONAL STRUCTURE AND LOGISTICS AS CONSEQUENCE OF AUTOMATIC PROCESSES

Bulgarian administration in its current form is a result of evolution in terms of conventional management technology of the last century. The existing organizational model is obviously an obstacle for future efficient operation of public administration.

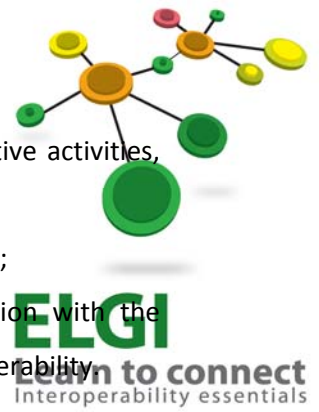


Therefore, the administration in its current form is unable to implement eGovernance technologies without serious systematic analysis of its compliance with modern information and telecommunication technologies. Respectively, to carry out a comprehensive re-engineering of administrative structures.

This requires:

- a) to carry out systematic research and analysis of business processes, arising of the administrative procedures (in terms of the System Analysis that relates to the so called “Business Process Management”);
- b) to establish Standards for Efficiency in the realization of administration procedures (including number and qualification of staff) with a view to implement modern information and telecommunication technologies;
- c) to formulate definitions of new processes of interaction between administrative bodies based on vertical integration between similar functional units;
- d) to perform research, analysis and respective suggestions for improving the structure of units of public administration at all levels in conformity with the introduction of new information and telecommunication technologies;
- e) to establish Standards for Quality in the implementation of Electronic Administrative Services for citizens and businesses, and also a mechanism for monitoring and control of the “Back Office”-processes in different departments related to the provision of e-Services;
- f) to establish view concerning the semantic provision of administrative activities- i.e. construction of publicly assessable hierarchical lists (thesauri) of the function and procedures implemented in the administration (in accordance with the international standard ISO 25964-1:2011).

The model of organization of administrative activities in accordance with the requirements for interoperability provides solutions to the following major problems:



1. determination of the set of data which is present, organization of administrative activities, organized as a "business-oriented services";
2. determination of the structures and procedures that maintain the specified data;
3. definition of interface controls for receiving data from outside, in connection with the implementation of legal requirements and compliance requirements for interoperability

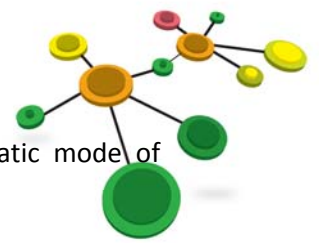
The standardization of government business processes and enabling more efficient and effective connections across structural boundaries will result in a range of benefits for government service users and providers. To make government services and information more accessible and to improve the efficiency with which they are provided, government must build the interoperability capability of its agencies, harmonize policies and regulations, integrate programs and streamline business processes.

A more standardized and uniform set of processes will ensure that government is more responsive to both challenges and change. The ability of agencies to respond efficiently and effectively to policy or structural changes is enabled by interoperability between business processes and the people and systems which support them.

The practical realization of business process interoperability in Bulgarian administration is through creation and support of unified stages of services and procedures. Each procedure in AIS must be composed of unified stages. These unified stages must be registered in the Register of registers and data.

According to the "Ordinance on internal circulation of electronic documents and documents in hard-copy form I administrations" for each unified stage, registered in the Register, the following data shall be maintained:

1. unique register identifier of a stage – a unique register identifier issued by the Register of registers and data upon registration of the stage;
2. name of a stage - name of the stage entered in the Register of registers and data;
3. definition of a stage - definition of the stage entered in the Register of registers and data;
4. executor of a stage - data identifying unequivocally by means of the AIS tools the administrative body or the Head of an administrative unit executing or organizing the execution of all actions for that stage in the mode "manual execution" or controlling the



operation of an AIS module performing the same processing in the automatic mode of operation;

5. time period for accomplishing a stage – the normatively fixed time or the time fixed by the internal rules for performing all activities for a stage;
6. a set of types of the document created – it shall contain the types of documents, which shall be created when executing the stage; all documents in the set must be included in the departmental nomenclature of the types of documents;
7. instructions concerning the stage – they describe the specifics upon accomplishing the stage of the service or procedure;
8. a set of final results of a stage – it shall contain one or several elements of the departmental nomenclature of results of a stage.



3.4 RE-ENGINEERING OF ADMINISTRATIVE INFORMATION SYSTEMS: PROCESSES AND ORGANIZATIONAL ASPECTS

The eGovernance Law and its ordinances define a new type of architecture in the organization of administrative activities. These regulations contain a set of instructions concerning the conduct of the interface of the administrations in their relation with citizens and businesses. For the most part, these instructions concern the provision of administrative services electronically.

The unification is the most important element in the transition to the new type of administrative organization, namely “service-oriented activity”. In this regard:

- a) all requests (external or internal) are treated similarly in respect to the start of administrative processes (in terms of their quality of “initiating documents”);
- b) all orders (external or internal) to the administration are treated similarly in respect to the launch of its processes (in terms of their quality of “initiating documents”);
- c) any process started by the initiating document is presented as a sequence of stages of processing of the respective activity;
- d) each stage is defined in a unified form.

In this regard, the organizational and process-oriented aspects of the re-engineering of the Administrative Information System include:

- unification of the stages of the services and procedures;
- unification of internal administrative processes;

- unification of activities` execution by administration;
- formation of the status of implementation of service or procedure;
- providing an uniform means for control of all activities in the administration;
- Preparation of internal rules for conduct of administrative activities.

3.5 CERTIFICATION PROCESS FOR INTEROPERABILITY

Chapter Five “Accreditation of Reviewers” of the Ordinance on General Requirements for Interoperability and Information Security states:

The conformity of the information systems implemented by the administrations with the requirements for interoperability and information security is certified by persons who are accredited by the Minister of Transport, Information Technology and Communications.

The accreditation shall be done while observing the principles of rule of law, independence, impartiality, publicity and equality.

The persons accredited along the procedure of the Ordinance must be enlisted in a public list of the accredited persons kept by the Minister of Transport, Information Technology and Communications. The persons who wish to perform certification of information systems for conformity with the requirements for interoperability and information security shall submit an application to the Minister of Transport, Information Technology and Communications using a pattern of application form approved by him.

The application shall contain:

1. unique identifier, the name, respectively the applicant’s designation;
2. unique identifier, name, telephone and e-mail address of the representing persons.

The application shall have the following enclosures:

1. a list of the technical means possessed by the applicant required for performing the respective activity including description of the technical means by type and factory number as well as a copy of the technical passports;



2. a list of the personnel of the accredited person performing the activities for certification containing names, unique identifier, education, specialty and occupied position, as well as documents certifying for the education and the qualification;
3. a copy of an insurance policy for the damages that can occur as a result of the non-performance of his/her obligations with an amount of the insurance coverage no less than 100 000 BGN;
4. applied procedures for certification of information systems;
5. a declaration for lack of circumstances referred to the respective legislation.

Chapter Six “Methods for Certification” of the Ordinance on General Requirements for Interoperability and Information Security states:

The administrations are obliged to use only information systems and programme applications which are certified for conformity with the interoperability and information security requirements established by the Law on eGovernance and the implementing regulations.

The certification shall be made while observing the principles of lawfulness, independence, impartiality, publicity and equality.

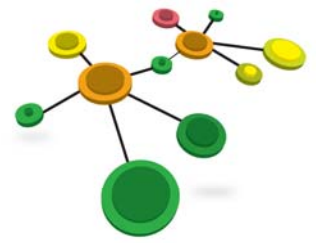
The information systems and the programme applications certified using the procedure of the Ordinance shall be entered into a public list of the certified information systems kept by the Minister of Transport, Information Technology and Communications.

Subject to certification for conformity with the interoperability and information security requirements shall be specifications for:

1. development or acquisition of an Administrative Information System;
2. building of direct connectivity between the information systems;
3. development or acquisition of specialized information.

The certification referred above shall be made upon the request of an interested administrative body.

Subject to certification for conformity with the interoperability and information security requirements shall be an information system which:



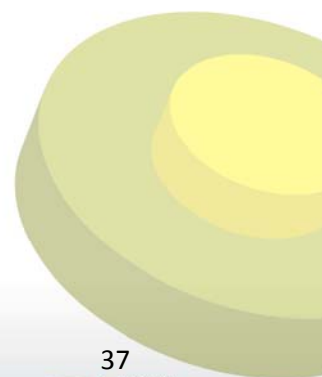
1. has a functionality according to the requirements of this Ordinance;
2. is a new version of an information system which has been already certified;

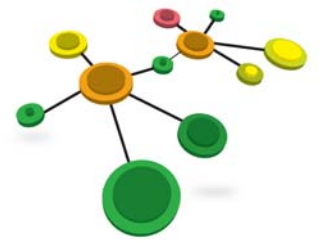
The certification referred to above shall be made upon the request of an interested person who is supplying or developing the information system.



Subject to certification for conformity with the requirements for interoperability and information security shall be programme applications that:

1. Perform functions for visualization and / or editing of electronic documents;
2. In composition of other applications or systems they perform functions for the verification of electronic documents for conformity with their registration in the Register of the information objects.





4. TECHNOLOGICAL ASPECTS

4.1 ANALYSIS OF ADMINISTRATIVE INFORMATION SYSTEMS THAT MEET INTEROPERABILITY REQUIREMENTS

Paragraphs 5 and 6 of the Transitional and Final Provisions to the eGovernance Law state:

“The Minister of Transport, Information Technology and Communications shall review the information systems used in each administration and shall give recommendations, which of them should be certified for conformity with the requirements of this Law, as well as what new information systems should be introduced, within six months from the promulgation of the regulations on the implementation of the Law.

The administrative bodies shall bring their information systems in conformity with this Law and with the recommendations of the Minister of Transport, Information Technology and Communications, referred above, within one year from the promulgation of the Law.”

The technology for this review has been published in the Web site of the Ministry. The most critical element of methodological tools for conducting an objective review of information systems is a set of criteria for assessing the suitability of the information system with the requirements for interoperability and information security. The standard definitions of such set of criteria are unrolled under the scheme “Data -> Structures to support data -> Functions providing for data and data structures”.

The procedures for this review provide three intervals for assessing the level of indispensable modifications:

- up to 25 % - the system is eligible for entry into certification procedure;
- 25 – 75 % - allowable amount of modifications;
- over 75 % - practically unfit for entry into certification process, i.e. the practical modification defines a new information system.

The percentage of modifications is estimated as the default of requirements to accrue points, roughly corresponding to the volume of modifications necessary for meeting the corresponding requirements.



4.2 STANDARDS AND TECHNICAL RULES FOR IMPLEMENTATION (FOCUSED ON ONLINE SERVICES)

Standard 1

The choice of fundamental standardization platform is of crucial importance, because of the exceptional diversity of the standards and the specifications related to the system integration and the interoperability. The evolution of the standardization process in respect to the system integration and the interoperability directs this choice towards the integration oriented to services. The latter allows not only for transfer of information from one application to another application in different information systems, but also the creation of complex application through services maintained.



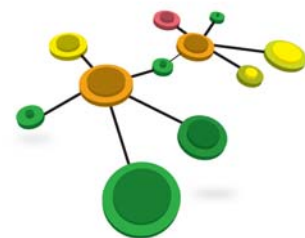
The basic approach to the creation of the National Framework is a combination of:

- the classical Reference model for open distributed processing (international standard ISO/IEC 1076 : 1998), which defines the infrastructure for distributed processing of information between heterogeneous technological resources and multiple organizational domains;
- the last level in the evolution of the standards for system integration – the so-called “Service oriented architecture (SOA)” where “loose coupled” modules of applications are distributed, combined and used for the creation of new applications in the network.

The standardization of the information systems in the governmental information systems in the field of the system integration and the interoperability covers wider area than that of the so-called “formal harmonized standards” approved by official intergovernmental standardization bodies (such as ISO, ITU at a global level or CEN, CENELEC, ETSI – at European level). It covers informal and hybrid standardization processes – the production of sectoral consortia, such as: OASIS, IETF, W3Consortium, UN/CEFACT, OMG, etc.

The forementioned standards can be divided into two main groups related to the fields of application:

- horizontal standards – with general application (in all areas);
- vertical standards – with application in the specific area (branch, etc.). As an example for the objectives of the governmental information systems these can be: medical information,



banking, geographic information systems, industrial product systems, etc.

The Framework is treating thoroughly only the horizontal standards, ensuring system integration and interoperability in the information systems within the administration. The vertical standards from areas concerned with these systems will be maintained by branch groups and an information relation with the Register of the standards, object of the present document, will be realized.



The basic criteria for choice of the standards are as follows:

- openness;
- level of accessibility and maintenance;
- maturity;
- potential;
- applicability to the national conditions.

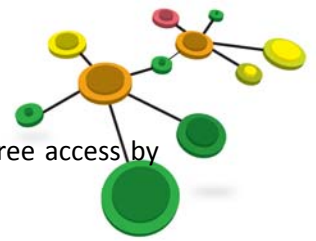
The standards are listed with short description in the Register of the standards. [11]

4.3 IS THERE AN OFFICIALLY ADOPTED LIST OR REGISTRY OF STANDARDS RELATED TO INTEROPERABILITY

The Register of the standards is a data base, managed by an information system containing technical standards and specifications which have to be applied by the administrative bodies for the provision of electronic services as well as for ensuring interoperability and information security.

The following circumstances shall be subject to entry in the Register of the standards:

1. standard title – the full title of the standards established by the international organization that has drafted the standard and maintaining it shall be entered translated into Bulgarian language and in original in English language;
2. identifier of a standard – a code identifier of the standard established by the international organization that has drafted the standard and is maintaining it shall be entered;
3. clarification for the standard – a brief text clarification for the standard shall be entered;
4. version – the last internationally accepted version of the standard shall be entered;
5. date – the date of the adoption of the last internationally accepted version of the standard shall be entered;
6. organization – the data for the organization that has drafted the standard and is holding it shall be entered;



7. text – text of the standard shall be entered if the standard is published with free access by the organization that has drafted the standard and is maintaining it;
8. URL of a publication – the electronic address (URL) is entered on the Internet site from which access is realized to instructions for supply of the standard if it is not with free access;
9. degree of applicability – a characteristics which can have values: “compulsory”, “recommendable”, “under control”, “white list”, “grey list” and “black list” is entered;
10. thematic belonging – a characteristics which can have values: “communication and exchange procedures”, “web-services”, “data integration”, management of the content and definition of meta-data”; “consumer interfaces”; “working stations”; “internal organization of the activity and working processes”, “management of the electronic identity” and “information security” shall be entered;
11. scope of applicability – the possibility for application of the whole standard shall be entered or only the respective parts of it shall be enlisted;
12. URL batch – the automatically generated URL of the Internet site from which access is realized to the content of the batch of the standard in the Register shall be entered.

A Council for the standards for interoperability and information security has been established under the Minister of Transport, Information Technology and Communications.

The Council for standards for interoperability and information security is an assisting consultation body and shall include experts assigned with an order of the Minister of Transport, Information Technology and Communications. It takes decisions about the admissibility and the grounds for making entries in the Register of the standards.

4.4 EXISTING METHODOLOGIES IN THE MANAGEMENT OF IT SERVICES

In recent years various working groups (for example, the Coordination Council for Information Technology under the Council of Ministers, some professional associations, etc.) have developed and made proposals for adoption of valid and binding on all administrations rules for management of the planning, establishment, support and improvement of the information infrastructure of administration.

This includes:

- procedures for centralized planning and cost control of ICT technologies and systems;

- procedures for coordinated management of the ordering, development, adoption and operation of ICT technologies and systems;
- procedures for management of IT services quality in accordance with International Standard ISO 20 000-1:2005 and with its predecessor ITIL (Information Technology Infrastructure Library).

Unfortunately, such common rules have not been adopted and the administrative bodies continue to address issues concerning the IT services management at their discretion.

Now in most administration the in-sourcing model is applied, in a small number of administrations – the out-sourcing model, in some part – mixed model between the above mentioned models.

The implementation of Service Level Agreements (SLA) has been perceived in few case of IT service realization.

The base models for technological environment with interoperability are as follows:

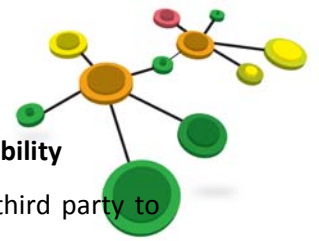
1. **model of the procedures and data**

This is a fundamental model, which is directly related to the creation of other models. To be able to ensure its use it is necessary to perform unification and formalization of the basic data set. According to interoperability, this set is called the Core components. That is, the creation of these Core components is an integral part of creating the model itself.

2. **model of organization of administrative activities in accordance with the requirements for interoperability**

The model provides the solutions to the following major problems:

- a) determination of the set of data which is present in the organization of administrative activities, organized as a "business-oriented services";
- b) determination of the structures and procedures that maintain the specified data;
- c) defining interface controls for receiving data from outside, in connection with the implementation of legal requirements and compliance requirements for interoperability;
- d) other.



3. **model for certification of IT resources to meet the requirements for interoperability**

The most important task of the model is to regulate in detail the involvement of a third party to conduct the tests for certification.



4. **model for control of the administration in implementing the requirements for interoperability**

The model provides a complete regulation of the administrative capacity and its use in control of the administration in implementing the requirements for interoperability.

5. **model for controllable and secure exchange of data between administrations**

This model is the basis for establishing a technical resource that implements a secure and controllable exchange of data between administrations.

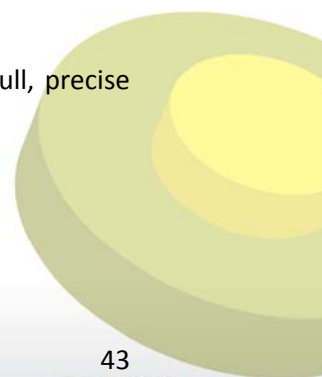
4.5 **IS THERE A NATIONAL CLEARING-HOUSE OF DATA ELEMENTS AND XML-CONSTRUCTIONS AND IF NOT, IS THERE ANY WORK IN THIS DIRECTION**

The Register of the information objects shall be a data base, managed by an information system and containing formalized technological descriptions of the information objects collected, created, stored and processed by the administrative bodies within the framework of their competence.

An information object shall denote single or composite data collected, created, stored and processed by the administrative bodies within the framework of their competence.

The information objects shall be:

1. "term" - a notion, which is interpreted unequivocally by all participants in the administrative process;
2. "nomenclature" – a final list of thematically related terms, entered into the Register;
3. "value" – constitutes a quantity and is described by a final number of meanings, determined by formal restrictions;
4. "segment" – a structure made up of terms, nomenclatures, values and/or other segments, already entered into the Register;
5. "document" – a segment for which a program application is ensured, enabling full, precise and true visualization of the data contained.



An information object under paragraph 1 may be entered into the Register only if an entry exists in connection with it in the “Unified data” section of the Register of the registers and the data. In this case the circumstances under paragraph 1, point 1 and 2 shall be entered with content, similar to that entered into the Register of the registers and the data.

4.6 AUTHENTICATION TOOLS FOR ELECTRONIC IDENTIFICATION INTEROPERABILITY (SMART CARDS, BIOMETRIC ACCESS SYSTEMS, ETC.)

The electronic identification Interoperability is ensured by so called “Internal Electronic Administrative Services for identification of persons and organizations”.

This is enacted by eGovernance law as follows:

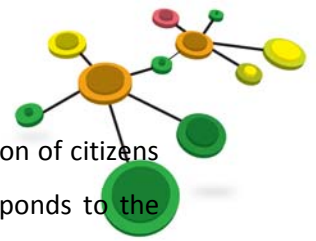
Article 5: The administrative bodies, the persons charged with public functions and the organisations providing public services shall be obliged to provide an opportunity to the citizens and the organisations to indicate unique identifier, when the latter request the respective administrative service.

Article 22: The recipients of Electronic Administrative Services and the authors of electronic statements shall identify themselves by the means of the unique identifier, unless it is permitted by law that no identification shall be required for a certain administrative service.

The integrity and the authorship of statements submitted electronically with regard to Electronic Administrative Services shall be ascertained with electronic signature created in accordance with the Law on Electronic Document and Electronic Signature and in compliance with the legislation in force in this field, unless otherwise provided by a law.

Article 28: When a request is submitted electronically, the provider shall verify forthwith the applicant’s identity by:

1. comparing the name of the applicant indicated in the request and the name of the author indicated in the electronic signature certificate, and



2. verifying in the respective administration responsible for the personal registration of citizens whether the established in accordance with point 1 name of a citizen corresponds to the unique identifier of the applicant, indicated in the application.



The verification of the identity shall be carried out for all citizens, in respect of which circumstances are being stated and which are identified with the unique identifier. The verification of the identity of organizations shall be carried out through verification in the respective registers of the organizations.

The above mentioned is the normative regulation of identification, which is realized by each Administrative Information System that is subject for certification. The specific algorithm and programming realization are not limited as long as they comply with the above rules.

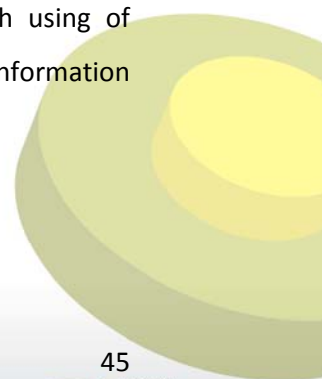
4.7 TOOLS FOR UNATTENDED ACCESS TO SERVICES AND INFORMATION IN PUBLIC PLACES (INFORMATIVE KIOSKS, PUBLIC ACCESS POINTS, ETC.)

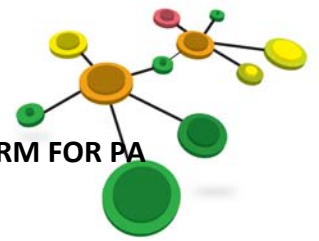
In the practice of the Bulgarian eGovernance applications the tools for unattended access to the Electronic Administrative Services have a place only in some Municipal Administrative Information Systems. Usually, the informative kiosks are situated in busy places in the central town of the municipality. The public access points predominate in small villages pertaining to the municipality, located away from it.

Some central administrative bodies also use specialized information kiosks to provide information for users, but that is not related to eServices and, respectively, is not relevant to our study.

4.8 ACTIVATION AND DELIVERING OF SERVICES WITH A WEB 2.0 LOGIC

The Bulgarian platform for interoperability between AIS considers the Web-application as one of the channels for handing in an application for Electronic Administrative Services through using of certified editing programs. In these circumstances the use of Web 2.0 as a platform for information sharing and collaboration does not relate to the e-Services delivery.





4.9 ONLINE SERVICES PAGES DIRECTORIES AND/OR SEARCH ENGINE PLATFORM FOR PA ONLINE SERVICES

The Register of the electronic services is a data base, managed by an information system and containing formalized technological descriptions of the Electronic Administrative Services and of the internal electronic administrative services, provided through the uniform document exchange environment.



The following types of electronic services are entered in the Register of the electronic services:

1. primary services, which are performed within the framework of a single administration, differentiated in geographical or functional terms, as a single process, starting from application for the service and ending by provision of the service or statement of refusal;
2. complex services, which are performed as a process, where the access to data, maintained by the administrations, shall take place by using primary or other complex services.

The Register of electronic services consists of the following sections:

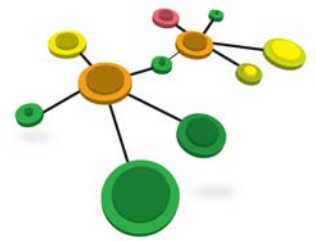
1. "Primary services" section;
2. "Complex services" section.

The circumstances concerning an electronic service of the "primary service" type, subject to entry into the "Primary services" section of the Register of the electronic services, are:

1. name of the electronic service – the full name of the primary electronic service shall be entered, whereby it is unambiguously individualized; the name shall be unique for services with "usable" status;
2. purpose of the electronic service – a brief text explanation of the purpose of the electronic service shall be entered;
3. status of the electronic service – indication shall be entered concerning the opportunity for the primary electronic service to be provided by the administrative bodies, by the organizations, providing public services and by the individuals, discharging public functions and to be used in regulations, including in the definitions of complex electronic services; the possible values are "usable" or "unusable";
4. Internet site for access to the electronic service batch - the URL of the Internet site shall be entered, from which access to the content of the batch of the primary electronic service is taking place;

5. unique register identifier of administrative service – the unique register identifier shall be entered, issued upon entry of the administrative service, which corresponds to the electronic service in the list of unified names of the administrative services, kept in accordance with the Ordinance under Article 5a, paragraph 1 of the Law on Administration; this fact shall be entered, where the electronic service is provided by administrations;
6. unique register identifier of application - the unique register identifier shall be entered, under which the segment, whereby the data in the application for the electronic service is presented, is registered in the Register of the information objects;
7. unique register identifier of reviser - the unique register identifier shall be entered, under which an application is registered in the lists of certified information systems, enabling full, precise and true revising of the content of the data in the application for the electronic service;
8. list of unique register identifier of responses – a list of unique register identifiers shall be entered, under which the documents, whereby the data is provided in response to an applied electronic service, are registered in the Register of the information objects, and where the result of the service provision is an administrative act, manifested in an act of entry into a public register, the unique register identifier of the register shall be entered;
9. unique register identifier of refusal – the unique register identifier shall be entered, under which the document, whereby provision of the electronic service was refused, had been registered in the Register of the information objects;
10. list of providers - a list shall be entered of data on the administrative bodies, the organizations, providing public services and of the individuals, discharging public functions, who provide the electronic service;
11. list of recipients of internal electronic administrative service - a list of data shall be entered for the administrative bodies, the organizations, providing public services and of the individuals, discharging public functions, who by virtue of regulation are entitled to access to the data, provided by the internal electronic administrative service and the conditions, under which they may obtain it.

An electronic service, when it is provided by an administrative body, may be entered into the Register only if an entry exists in regard to it as an administrative service in the list of unified names of the administrative services, kept by the council of Ministers. In this case the circumstances are entered with content, similar to that entered into the list of unified names of the administrative

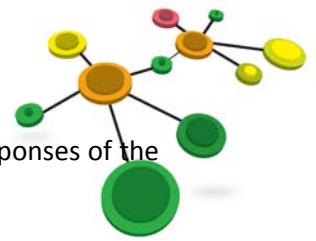


services.

The circumstances concerning electronic services of the “complex service” type, subject to entry into “Complex services” section, are:



1. name of the electronic service - the full name of the complex electronic service shall be entered, whereby it is unambiguously individualized; the name shall be unique for services of “usable” status; where the name is normatively regulated, it shall be entered into the Register precisely in the manner, established in the regulation;
2. purpose of the electronic service - a brief text explanation of the purpose of the electronic service shall be entered;
3. status of the electronic service - an indication shall be entered concerning the possibility for the service to be provided by the administrative bodies, by the organizations, providing public services and by the individuals, discharging public functions and to be used in regulations, including in the definitions of complex electronic services; the possible values are “usable” or “unusable”;
4. Internet site for access to the batch of the electronic service - the URL of the Internet site shall be entered, from which access to the content of the batch of the complex electronic service is taking place;
5. unique register identifier of administrative service - the unique register identifier shall be entered, issued upon entry of the administrative service in the list of unified names of the administrative services, which corresponds to the electronic service; this circumstance shall be entered, where the electronic service is provided by administrations;
6. unique register identifier of application - the unique register identifier shall be entered, under which the segment, whereby the data in the application for the electronic service are presented, is registered in the Register of the information objects;
7. unique register identifier of reviser - the unique register identifier shall be entered, under which an application is registered in the lists of certified information systems, enabling full, precise and true revising of the content of the data in the application for the electronic service;
8. list of unique register identifier of responses – a list of unique register identifiers shall be entered, under which the documents, whereby the data is provided in response to an applied electronic service, are registered in the Register of the information objects, and where the result of the service provision is an administrative act, manifested in act of entry into a public register, the unique register identifier of the Register shall be entered; this circumstance shall



- be entered, where the responses to the primary services do not exhaust the responses of the complex service as a whole;
9. unique register identifier of refusal – the unique register identifier shall be entered, under which the document, whereby provision of the electronic service was refused, had been registered in the Register of the information objects; this circumstance shall be entered, where the refusal under the primary services do not exhaust the refusal of the complex service as a whole;
 10. complex service – a complete description shall be entered of the procedures for providing the complex electronic service based on data, maintained by the administrative bodies, by using primary electronic services, registered in the Register of the electronic services;
 11. list of providers - a list of data shall be entered for the administrative bodies, the organizations, providing public services and of the individuals, discharging public functions, who provide the electronic service;
 12. list of the recipients of complex internal electronic administrative service - a list of data shall be entered for the administrative bodies, the organizations, providing public services and the individuals, discharging public functions, who by virtue of regulation are entitled to access to the data, provided by the complex internal electronic administrative service and the conditions, under which they may obtain it.

The Register of electronic services is accessible through the Internet. The Minister of Transport, Information Technology and Communications ensures an opportunity for review of the current status of the batches of electronic services at the moment of the verification, as well as of their status at a certain date back in time.

4.10 RE-ENGINEERING OF ADMINISTRATIVE INFORMATION SYSTEMS: TECHNOLOGICAL ASPECTS

The technological process of the re-engineering of the AIS consists of the following sequence of actions:

1. analysis of the type and quantity of indispensable Document Registers; registration of these registers in the Register of registers and data; adjustment of AIS for processing these registers;
2. establishment and maintenance into AIS of Classification schemes for following types of information objects:

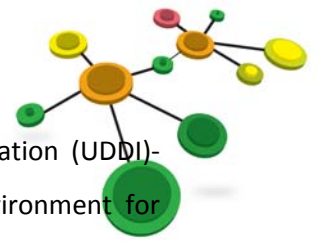
- a) users;
 - b) documents;
 - c) tasks;
 - d) personal data;
 - e) nomenclatures.
3. establishment of Departmental nomenclature of types of documents for concrete administration; adjustment of AIS for processing this nomenclature;
 4. establishment of Departmental nomenclature of stages of services and procedures for concrete administration; adjustment of AIS for processing this nomenclature;
 5. establishment of Departmental Nomenclature of Services and Procedures for concrete administration; adjustment of AIS for processing this nomenclature;
 6. establishment of Departmental nomenclature of schemes for storage of documents for concrete administration; adjustment of AIS for processing this nomenclature;
 7. creation of Interfaces between AIS and “external environment” by specialised applications, integrated into the AIS, such as:
 - a) module for Web-application;
 - b) module for integration with the Communication Client of the UEEDDE;
 - c) module for e-Mail exchange;
 - d) module for reception of documents stored on magnetic or other external media
 8. interface modules for connection with other specific system of this administration – the regulations of the eGovernance Law do not prescribe any special requirements for these connections. The administration has an alternative between direct communication (i.e. the method of components call) and communication based on messages. The advantages of the second one are related to the ability to separate components from one another;
 9. establishment of internal rules for working with the AIS adapted to the specifics of the particular administration.

Creation of profiles for access of various groups of employees to the resources of the AIS. The profiles correspond to the duties of employees included in their job description.

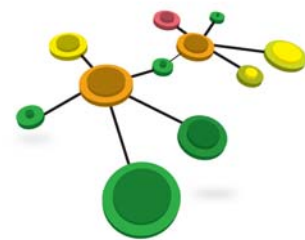
4.11 WEB-SERVICES ADOPTION

The Bulgarian platform for interoperability between Administrative Information Systems (AIS) does not provide the using of web services for exchange of data between AIS. This can be done by so called Internal Electronic Administrative Services, which are registered in the Register of electronic

services (,the web services are listed in Universal Description, Discovery and Integration (UDDI)-registry similarly). The transport layer for such internal services is the Unified Environment for electronic Documents Exchange.



ELGI
Learn to connect
Interoperability essentials



5. BEST PRACTICES AND SYSTEMS ON TRIAL

5.1 BEST PRACTICE

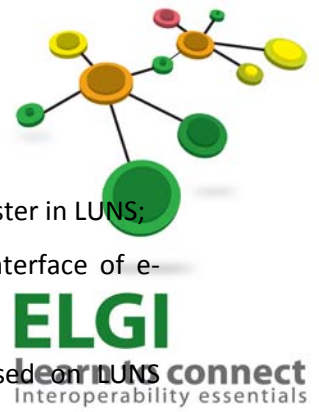
At present, the best examples of implementation of interoperable eGovernance applications can be identified in some municipalities. This is because in these municipalities the general processes of re-engineering of Administrative Information Systems and of implementation of a wide range of Electronic Administrative Services are in final stage. While in most central administrative bodies these processes are in initial phase.

The application of the principles of interoperability in the municipal e-Services leads to the fact that the ordering and the receipt “online” of the services are realized in the same way – regardless of the size and characteristics of different communities. For users the identical services of various municipal authorities are the same.

It should be noted that the AIS and the Electronic Administrative Services are invariant, i.e.:

- a) if the AIS is built according to the eGovernance Law (and certified), it may provide means to perform any service developed under this law having in mind that:
 - AIS is created regardless of the services, which could be implemented in its environment;
 - the mandatory minimum capabilities of the AIS are ensured by its certification;
 - all functions of the AIS over the statutory minimum are related to the quality, increasing its competitiveness and are eligible in condition that they do not contradict the law;
 - the implementation of a service accepting applications as paper documents needs only adjusting of the AIS, i.e. it is necessary to introduce unified definition of service in the Departmental Nomenclature of Services and Procedures;
 - the actual performance of a service under the preceding paragraph only requires training of personnel involved in service delivery;

- b) If the service is established under the law, it can be implemented by means of any certificated AIS. It should be kept in mind that:
 - to create administrative service under the law is to create its "uniform definition" and to register it in the List of unified names of services (LUNS);



- to make electronic administrative service under the law means in short:
 - to establish uniform definitions of the service and its stages and to register in LUNS;
 - b) to create and record electronic documents that represent the interface of e-Service in the Register of information objects;
 - to register the e-Service in the Register of electronic services based on LUNS registration and on registration of electronic documents in the Register of information objects.

c) To implement "legal service", i.e. service, which meets the requirements of the eGovernance Law and its ordinances, the e-Service developer must do the following:

- initial identification of the service, including:
 - feasibility analysis in automatic mode;
 - legal analysis of the identified e-Service;
 - technological identification of service-like activities that shape it;
- an uniform definition of the service and its stages, including:
 - creation of a uniform definition of the service;
 - registration of a unified definition of service in the List of unified names of services (LUNS) and inclusion in Departmental Nomenclature of Services and Procedures (DNSP);
 - establishment of uniform definitions of stages, which present? service;
 - registration of unified definitions of the stages in the Register of registers and data and inclusion in Departmental Nomenclature of the Stages of Services and Procedures (DNSSP);
- legalization of information objects related to the service, including:
 - definition of the initial composition of data in documents to be adopted / issued in the performance of service;
 - unification of data in documents;
 - creation of XML-uniform definitions of data;
 - registration of unified data, which appear new to the Register of registers and data;
 - definition of guidelines for: processing of data in documents, validation of data in documents, visualization of data in documents;

- creation of applications for visualization / editing of requests and responses to services;
 - creation of test data set for the certification of software applications for visualization and editing;
 - certification of software applications for visualization / editing by accredited person with entry in the list of certified systems;
 - registration of e-Documents relating to services in the Register of information objects.
- legalization of electronic service, including:
 - registration of service in the Register of electronic services;
 - definition of terms representing the errors detected during validation of data in the documents relating to the service;
 - further development and certification of the application that performed validation of documents issued or adopted in the execution of the service.

The presentation of the services and procedures in the Administrative Information Systems of various municipal administrations is unified through the stages of services and procedures registered in the Register of registers and data.

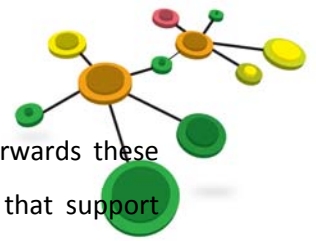
The exchange of information between municipalities and some of central administrative bodies is also unified. Thus the works of both administrations are facilitated.

Eleven municipal administrations have been involved in this project (such as: Stambolyiski, Gabrovo, Pleven, Montana, Svilengrad, etc.)

5.2 SYSTEM ON TRIAL

The more crucial experiment of interoperability of eGovernance applications is the work together of the elements of the centralized infrastructure for interoperability of Bulgarian eGovernment (including: the registers: of registers and data, of information objects and of electronic services; the Unified Environment for electronic Documents Exchange (UEEDE); the system for astronomical time synchronization; the internal PKI-system for administration).

The Single portal for access to Electronic Administrative Services is the entry point of the various target groups of eGovernment to information systems of service providers. Here the end users are identified and submit applications for administrative services through specialized user interface.



Upon acceptance of applications for Electronic Administrative Services the portal forwards these applications to providers through UEEDE, which caters to contact the relevant AIS that support functionality and data necessary for selected service.



The UEEDE is a secure managed environment for exchange of electronic documents, registered in the Register of information objects, between registered parties.

The registration of participants includes:

1. data identifying the administration;;
2. name of participant;
3. IP-address;
4. Unified Registry Identifier (URI) of the registration;
5. digital certificate;
6. other data.

The addressing in the UEEDE forms three levels:

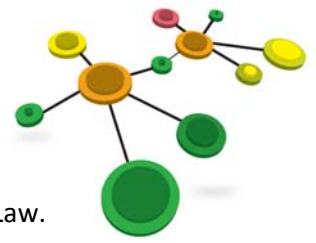
- the level "release" - via IP;
- the level "transfer of document" – via URI of the registration of participants;
- the level “service or procedure” – via URI of the registration of the application document.

The document exchange is protected by encryption / decryption procedure through asymmetric public key cryptography using digital certificates of the UEEDE- server and UEEDE-clients. These transport certificates will be issued by the internal public key infrastructure for all administrations, maintained by the Minister of Public Administration and Administrative Reform.

The transfer protocol is based on the standard SOAP (Simple Object Application Protocol).

The purpose of the register of registers and data is to support the definitions of all data (uniform and non-uniform), packet data and information for registers and sections of registers, which are maintained in the administration. The Register of registers and data solves the following tasks:

- records all data definitions, which are maintained in the registers of the administration;
- ensures the maintenance of registration for all documentary records used in the administration, by persons performing public functions and by organizations providing public services;



- provides support for packet data;
- maintains information on primary data administrators under the eGovernance Law.

The purpose of the Register of information objects is to maintain the formal technical descriptions of information objects collected, created, stored and processed by the administrative authorities within their jurisdiction. These statutory definitions of regulated data allow automated processing of these data and maintain links between the unified and formalized definitions



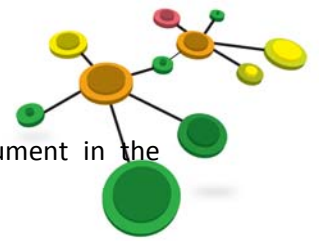
The Register of information objects contains the definitions of the data required for performing automatic validation of electronic documents. For each formalized document the register provides a reference to a registered list of certified products and application systems for visualization of the document, which allows full and accurate representation of the data contained in the document.

The purpose of the Register of electronic services is to support the formal technical descriptions of Electronic Administrative Services and internal Electronic Administrative Services through a single exchange environment of electronic documents. For each registered service the registry also provides reference to the registered list of certified systems and applications that allows complete, accurate and true editing of the content in the application for electronic services.

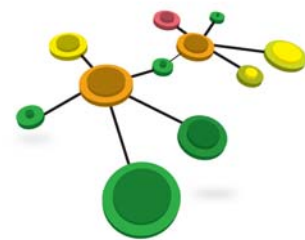
In the Register of certified systems and products shall be entered the circumstances concerning information systems and applications for visualization and editing of electronic documents, which have been certified for interoperability by accredited person. The Register provides links to the installation package of the appropriate application, when application is certified as a registered in the Register of information objects. This provides public access to at least one software application for editing and/or visualization of formalized electronic document, which allows end users and administrations securely and reliably handle the content in terms of interoperability.

Currently 5 ministries and 4 municipalities are involved actively in the experiment. By the end of the year it is foreseen that 16 central administrations and 22 municipalities will be integrated. It is necessary to determine how effectively the Communication Client of UEDE interconnects with Administrative Information Systems, how much time is required by the sessions between Communication Client and Communication Server (including encryption and decryption of transmitted electronic documents), how the validation of transmitted documents is performed by

the Communication Server in accordance with the registration of respective document in the Register of information objects, etc.



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INFORMATION SOURCE

- 1 National Statistical Institute, 2011, http://www.nsi.bg/EPDOCS/ICT_hh2011_en.pdf
- 2 <http://www.mtitc.government.bg/page.php?category=465>
- 3 <http://www.esmis.government.bg/en/page.php?c=36>
- 4 http://www.mtitc.government.bg/upload/docs/en_ORDINFORMATION_SECURITY.pdf
- 5 <http://rs.esmis.government.bg/Standards/default.aspx>

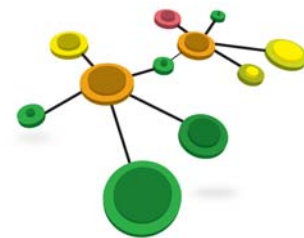
- 6 <http://pe.test.egov.bg/ereg-public/rio/home.rg>

- 7 <http://pe.test.egov.bg/ereg-public/res/home.rg>

- 8 <http://sal.esmis.government.bg/default.aspx>

- 9 <http://www.mtitc.government.bg/page.php?category=549&id=4326>

- 10 http://www.mtitc.government.bg/upload/docs/en_BUL_FRAMEWORK.pdf
- 11 <http://rs.esmis.government.bg/Standards/default.aspx>



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