Research on National Policies and Practices

LATVIA

WP3: ELGI – eLearning for eGovernment

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State-of-the art national report

WP3: ELGI – eLearning for eGovernment
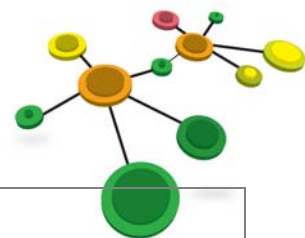
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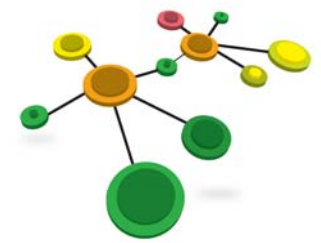
ABBREVIATIONS

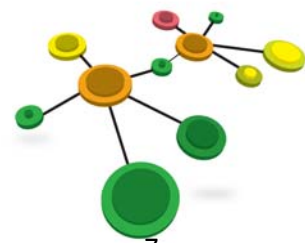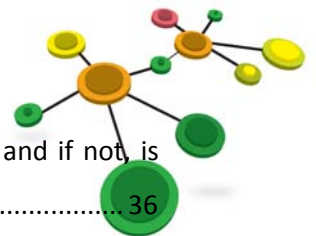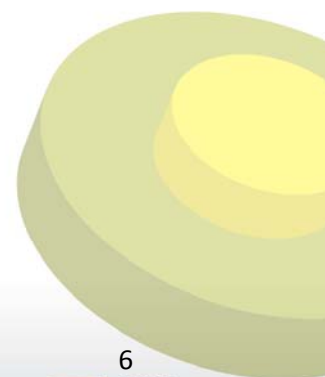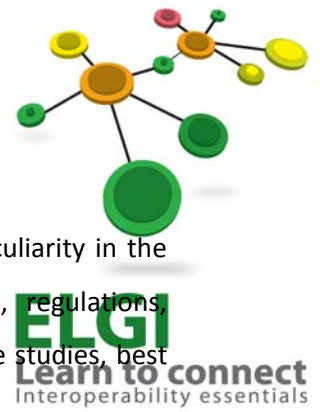|	
CMA	Citizenship and Migration Affairs
CSDD	Road Traffic Safety Directorate
EPS	Electronic Procurement System
EPSA	Electronic Procurement State Agency
ERDF	European Regional Development Fund
ESF	European Social Fund
EU	European Union
FKTK	Financial and Capital Market Commission
ICT	Information And Communication Technologies
ISIS	Integrated State Information System
IT	Information Technologies
ITTE	Information Technology In Teacher Education
JISM	Joint Information System For Municipalities
LabIS	Joint Welfare Information System
LIKTA	Latvian Information Technology And Telecommunications Association
NDP	National Development Plan
NIF	The Latvian National Interoperability Framework
OSEPA	Open Source Software Usage By European Public Administrations
PA	Public Administration
SIS	State Information Systems
SRDA	State Regional Development Agency
TIS	Territory Planning Information System
VARAM	The Ministry Of Environmental Protection And Regional Development
VMIS	Passport System and Common Migration Information System

TABLE OF CONTENTS

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 the state of automation in the 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 the identification and exploitation of the best solutions in the field of innovation processes within the PA, but at the same time 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.
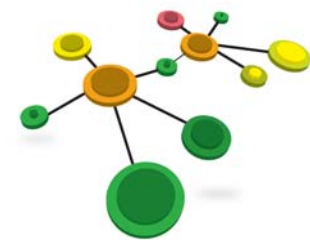
1. STATISTICS ABOUT LATVIA

1.1. COUNTRY

Name of the Country

Latvia

Comments

The Republic of Latvia was founded on November 18, 1918. It has been continuously recognized as a sovereign state since 1920 despite occupations and rule by the Soviet Union (1940-1941, 1945-1991) and Nazi Germany (1941-1945). On August 21, 1991 Latvia declared the restoration of its de facto independence, re-established international diplomatic ties, and joined the United Nations. Latvia joined the WTO in 1998 and in 2004 became a member of The European Union and NATO. The name "Latvija" comes from the ancient Latgallians, one of four Indo-European Baltic tribes, who along with Couronians, Selonians and Semigallians formed the ethnic core of today's Latvian people.

1.2. POPULATION

Population 2 067 887 (by March 1 2011 [1])

Comments

Accordingly to "SKDS" and "Ernst & Young" company's study 74% of Latvians uses internet. Where 41% of this amount access internet through free facilities in public libraries. [2]

1.3. PUBLIC ADMINISTRATIONS

Estimate of public organizations on the national territory

- 19 ministries and 110 municipalities. [3]

Comments

- Office of the President: http://www.president.lv;
- Cabinet: http://www.mk.gov.lv;
- The Latvian Parliament: http://www.saeima.lv/;
- Ministry of Defense: http://www.mod.gov.lv/;
- Ministry of Foreign Affairs: http://www.am.gov.lv/;
- State Agency "The Latvian Institute": http://www.li.lv/;
- Children and Family Affairs: http://www.bm.gov.lv/;

- Economics Ministry: http://www.em.gov.lv/;

- Ministry of Finance: http://www.fm.gov.lv/;

- Ministry of the Interior: http://www.iem.gov.lv/;

- Ministry of Education: http://www.izm.gov.lv/;

- The Ministry of Culture: http://www.km.gov.lv/;

- Welfare: http://www.lm.gov.lv/;

- Regional Development and Local Government Affairs: http://www.raplm.gov.lv/;

- The Ministry of Transport: http://www.sam.gov.lv/;

- Ministry of Justice: http://www.tm.gov.lv/;

- Ministry of Environment: http://www.vidm.gov.lv/;

- Ministry of Health: http://www.vm.gov.lv/;

- Ministry of Agriculture: http://www.zm.gov.lv/.

1.4. COMPANIES

Estimation of the firms in the Country

185,980 [4]

Percentage of companies listed on the web

http://www.zl.lv/

Comments

53 supplier (commercial companies) and 151 customers (state and municipal institutions) uses State

e-procurement system (see Tool 7 description). [5]
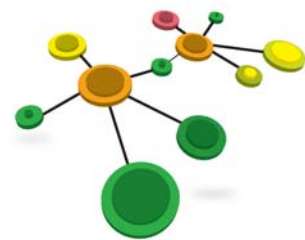
2. REGULATORY AND LEGAL FRAMEWORK

2.1 LEGISLATION – ESSENTIAL ELEMENTS

- Law 1 (Nr. 62324, adopted 02.05.2002, into force from 05.06.2002, last amendment 09.06.2011): Law on State Information Systems; [6]

- Law 2 (Nr. 765, adopted 11.10.2005): General Security Requirements of State Information Systems; [7]

- Law 3 (Nr. 219426, adopted 08.10.2010, into force from 01.01.2011, without amendments so far): Information system security regulatory framework for financial and capital market participants; [8]

- Law 4 (Nr. 4042, adopted 23.03.2000, last amendment 19.12.2006): Personal Data Protection Law ; [9]

- Law 5 (Nr. 68521, adopted 31.10.2002, into force from 01.01.2003, last amendment 24.05.2007): Electronic Documents Law ; [10]

- Law 6 (Nr. 85206 adopted 02.03.2004, into force from 01.01.2006, last amendment 15.03.2005): Regulations regarding the Manner of Appraisal of Electronic Records, Procedures for the Storage thereof and Transfer to the State Archives for Storage. [11]

2.2 LEGISLATION – A BRIEF DESCRIPTION

Law 1 (Nr. 62324, adopted 02.05.2002, into force from 05.06.2002, last amendment 09.06.2011) [12]

Law on State Information Systems.

Purpose and tasks of this Law:

(1) The purpose of this Law is to ensure the accessibility of information provided by State and local government institutions and the quality of the State information systems.

(2) The tasks of the Law are as follows:

- to determine unified procedures by which State information systems are created, registered, maintained, used, reorganized or liquidated;

- to regulate co-operation of the State information system managers;

- to determine the functions of the keeper of the State information system and the rights and duties of the State information system data subject (hereinafter – data subject);

- to regulate the security management of State information systems;
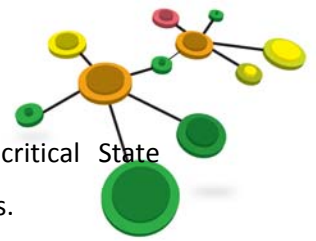
- to specify the requirements to be observed for the protection of critical State information systems and State information system management integrators.

Law 2 (Nr. 765, adopted 11.10.2005) [13]

General Security Requirements of State Information Systems.

The security of State information systems shall be ensured by an aggregate of measures which are implemented in order to:

1) ensure system operation according to the functions prescribed by regulatory enactments;
2) ensure information accessibility;
3) ensure information entirety;
4) ensure information secrecy;
5) protect the system information resources;
6) protect the system technical resources;
7) determine threats to system security;
8) evaluate system security risk;
9) detect a system security incident;
10) restore system operation following a system security incident.

Law 3 (Nr. 219426, adopted 08.10.2010, into force from 01.01.2011, without amendments so far) [14]

Regulations are applicable to registered Latvian financial and capital market participants: banks, credit unions, payment institutions, insurance companies, insurance brokers, private pension funds, regulated market organizers, the Latvian Central Depository, investment firms and investment management companies.

Rules are intended to limit the risks of market participants and retail services usage, and identify common structured IS security requirements for market participants for risks' management.

Regulations determine the minimum requirements. The market participant may introduce additional security measures, depending on the classification level of information resources and analysis of risks, taking into account the services provided, staffing and information technology utilization.
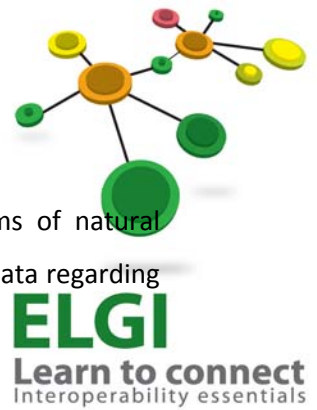
Law 4 (Nr. 4042, adopted 23.03.2000, last amendment 19.12.2006) [15]

The purpose of this Law is to protect the fundamental human rights and freedoms of natural persons, in particular the inviolability of private life, with respect to the processing of data regarding natural persons.

This Law, taking into account the exceptions specified in this Law, applies to the processing of all types of personal data, and to any natural person or legal person if:

- the system administrator is registered in the Republic of Latvia;
- data processing is performed outside the borders of the Republic of Latvia in territories, which belong to the Republic of Latvia in accordance with international agreements; and
- equipment is located in the territory of the Republic of Latvia, which is utilized for the processing of personal data.

Law 5 (Nr. 68521, adopted 31.10.2002, into force from 01.01.2003, last amendment 24.05.2007) [16]

Electronic Documents Law

Application of this Law:

- this Law determines the legal status of electronic documents and electronic signatures;
- the provisions of this Law are not applicable if a natural person or legal person who is not a certification service provider performs the stamping of electronic documents with a time-stamp.

Law 6 (Nr. 85206 adopted 02.03.2004, into force from 01.01.2006, last amendment 15.03.2005)

These Regulations prescribe the manner of appraisal of electronic records, the procedures for the storage thereof, and the time periods for the transfer of such records to the State archives for storage. These regulations apply to State and local government institutions and legal persons, which pursuant to regulatory enactments shall transfer the electronic records for State storage.
(http://www.vvc.gov.lv/export/sites/default/docs/LRTA/MK_Noteikumi/Cab._Reg._No._117_-Regs_re._..._Evaluation_of_Electronic_Documents_etc..doc)
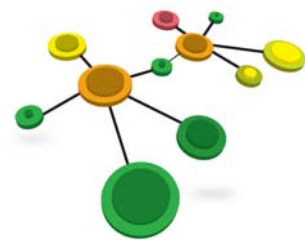
2.3   SUBJECTS INDICATED OR INVOLVED

Organization 1: The Ministry of Regional Development and Local Government

The Ministry of Regional Development and Local Government [17] is the leading public administration national development and regional development planning and coordination in the field of municipal development, spatial planning and land policy, as well as electronic government, information society and information technology.

The Ministry of Regional Development and Local Government aims to:

1. coordinate national and regional development policies in line with Latvian Sustainable Development Strategy and the National Development Plan, ensuring consistency between the single national development planning system entry;

2. monitor regional development policy, creation of an effective enforcement mechanism, Latvian promoting balanced regional development;

3. capacitate municipalities to promote the development of quality services throughout the Latvian and citizen participation in the development of their territory, as well as government oversight, according to the statutory functions;

4. develop national policy and ensure its implementation of electronic government, information society and information technology;

5. Encourage state and local government electronic services.

Organization 2: FKTK – organization responsible for Law 3

The Financial and Capital Market Commission [18] is an autonomous public institution, which carries out the supervision of Latvian banks, insurance companies and insurance brokerage companies, participants of financial instruments market, as well as private pension funds.

The Financial and Capital Market Commission ensures enhancing stability, competitiveness and development of the financial and capital markets as well as protection of the interests of investors, depositors and insured persons.

Organization 3: LIKTA

Latvian Information Technology And Telecommunications Association – LIKTA [19]:

Professional association that regroups over 60 important ITTE product and service providers and educational institutions, as well as over 150 individual professional members of the ITTE industry sector in Latvia, namely in computer hardware and software, electronics, and telecommunications infrastructure and service providers.
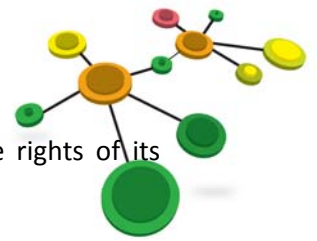
LIKTA is a non-governmental, democratic organization, respecting and balancing the rights of its corporate members and its individual members. All decisions are consensus based.

Latvia wholly endorses the objectives of e-Europe and intends to become a full partner of the knowledge based global economy. It has elaborated its own e-Latvia strategy as well as an eGovernment model. Crucial prerequisites for this mission are a knowledgeable, ITTE literate population and a well-developed ITTE industry. Latvia has the advantage of having a fully literate population and a tradition of excellence in mathematics, science and engineering.

2.4 MAIN INSTRUMENTS ACTIVATED AND/OR USED

Tool 1: National Interoperability Framework

Integrated State Information system (ISIS) [20] which is meant to implement eGovernment services and to support electronic government invention in Latvia. ISIS is for e-services developers and those who want to perform system integration using modern technologies and standards. ISIS portal content consists of all the technical details relating to system integration:

- public services catalogue;
- E-services catalogue;
- XML schemas;
- IS services;
- E-services management.

Tool 2: E-Governance

Since August 2008, the SRDA State Regional Development Agency (SRDA) [21] is providing development and maintenance of the Joint Information System for Municipalities (JISM). The main task of the JISM is to provide technological support to municipalities of Latvia for accessing their services electronically by creating a joint data accounting and exchange systems that are compatible. The JISM is being created since 2000, and currently it provides not only such municipal functions as registration of the population, registration of the real estate, gathering and storing data of the registry offices and social service providers but also data exchange with Population Register, Real Estate State Cadaster Information System, State Address Register, Vehicle and Drivers' State Register.
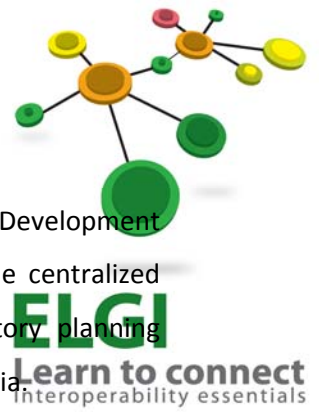
Tool 3: TIS – Territory planning information system

The SRDA in cooperation with the Ministry of Environmental Protection and Regional Development is developing a territory planning information system (TIS) [22]. The TIS will provide centralized circulation of the territorial planning documents as well as support to the territory planning development and harmonization. The TIS will be accessible to every municipality in Latvia.

The aims of the project were:

- develop state information system which will ensure land policy management and territory planning at municipal, regional and state level;

- inhabitants and merchants will get interactive map tool which will allow to search and receive necessary geospatial information and to participate in public discussion. It will also allow planning more effective environment of investment, life and work;

- municipalities will be able to receive centralized e-data which is necessary for territorial and development planning. Flow of paper documents will be replaced with e-papers, thus facilitating and speeding-up communication;

- the state institution involved in planning will receive current, accurate and feasible data for planning at national level, environment for methodological guidance of planning processes and decision making supervision and implementation control;

- holders of geospatial data will gain unified interface for exchange of information and access to municipal geospatial data;

- the developed solution will ensure support for INSPIRE directive implementation in connection with data of territorial planning together with support for storing other data sets. (http://www.aaprojekts.lv/page/26).

Tool 4[23]

Ever since the start of development of site the goal is to create new e-services. The portal has created a number of integrated e-services, which gather data from the Latvian authorities, State institutions and commercial companies. Portal integration of e-business environment is the basis for many inter-agency e-services. The portal is available to both private and corporate authorized persons.

It's easy! To start the service, click on the link "Start service" or "Login to start" and sign in using one of the portal's methods. If there is a need to obtain information about services, it is necessary to affix link "Service description".
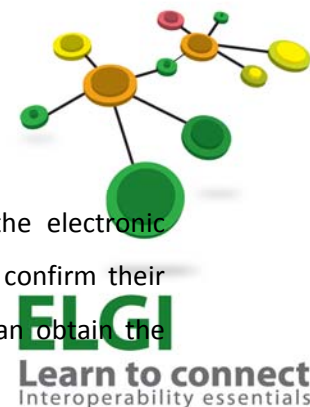
Tool 5 (authentication) [24]

Lattelecom Mobile ID – Mobile signature, replaces passports and signatures in the electronic environment. It enables mobile telephones to prove their identity remotely and to confirm their selected service. Utilizing their Mobile signature [25], your company's customers can obtain the services you provide securely, conveniently and quickly.

Benefits:

For your company:

- secure customer authorization and confirmation of service choice;
- opportunity to attract new customers remotely (not requiring the presence of the customer);
- capability to provide services anywhere with mobile telephone coverage;
- opportunity to utilize different sales and customer service channels;
- customer data security.

For your customers:

- option to receive services anywhere with mobile telephone coverage;
- assurance as to identity of service provider;
- ability to use a single means of authorization with different service providers;
- efficient utilization of time;
- assurance on personal data security.

Tool 6 (authentication)

eSignature [26] is a unique electronic verification of personal identification added to a document that has been prepared on a computer. eSignature is the electronic format equivalent of a manually signed signature on a paper document and it confirms its affiliation to a particular natural person, representing a legal person. Use of the eSignature ensures authenticity of the electronic document and confirms the signatory's identity.

In compliance with legislation, the Time Stamp must be used along with the eSignature, in communication with state and local government institutions, electronically recording and confirming the time of signing a particular document. When using the eSignature, documents have the same legal effect as documents created and signed in paper format.

Tool 7 (e-procurement)

Electronic Procurement System (EIS) is the first e-procurement system [27] in the Baltic States, which was established in 2005. EIS is based on the principle of electronic catalogues, which acts as a store
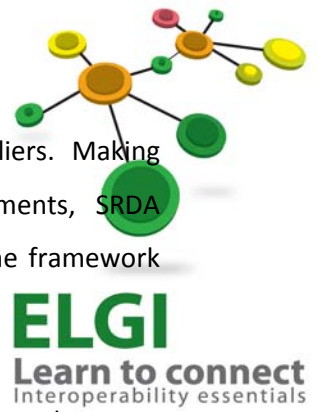
for public sector organizations, as their standard products are offered by several suppliers. Making open competitions in accordance with public procurement regulations requirements, SRDA maintains a standard electronic product catalogues (e-catalog) in accordance with the framework agreement concluded between the SRDA and supplier organizations.

The Latvian eProcurement system (EPS) was put in production at the end of 2005. It operates as an eCatalogue, primarily focusing on achieving the following goals:

- reduce product and procurement process administrative costs;
- achieve transparency;
- introduce benefits to suppliers through automated processing.

Latvian eProcurement system strongly complies with the laws of Republic of Latvia and regulations of the Cabinet of Ministers of Latvia, as well as with EU regulations.

Electronic Procurement State Agency (EPSA) administers and maintains the EPS. To participate in EPS Framework Agreement has to be concluded.

The EPSA is set to provide a single portal for all public sector procurements and for monitoring procedures.

The purpose of EPS [28] implementation is to improve public sector procurement in Latvia by achieving the following objectives:

- reduce the risk of corruption in the procurement process by promoting open competition between suppliers;
- ensure efficient use of budget funds;
- reduce the duration of the procurement process;
- simplify the procurement process for small government bodies;
- create infrastructure that will ensure compliance with EU directives 2004/17/EC and 2004/18/EC.

2.5 NATIONAL INTEROPERABILITY FRAMEWORK

The Latvian national interoperability framework (NIF) designs the fundaments of eGovernment, by defining a single point of contact for citizens and businesses, by sharing components and tools for e-

service development, and by creating standardized interoperability platforms based on open standards. Although no explicit interoperability framework exists, guidance on interoperability is given by legal acts on state information systems and by documentation of Latvian integration platforms.

Legal acts on state information systems

From 2005 till 2009, different legal acts were published related to security requirements of state information systems, technical requirements of state information systems, requirements for the protection of critical state information systems, requirements for state information system management integrators, procedures for the establishment, maintenance and activities of the state information systems management integrators, and procedures for ensuring the functioning of state information systems within the framework of integrated state information systems.

Documentation of integration platforms

In order to support single points of contact for citizens and businesses, Latvia employs different integration platforms (ISIS, VISS) via comparable architectures. By means of these integration platforms, different facets of interoperability between public administrations are specified, such as data exchange, security, reusable building blocks, standards, sharing of semantic models, service level agreements etc.

Other initiatives on interoperability

Currently a policy planning document (agenda) is being drafted nationally in order to implement the principle of one-stop agency in all local governments – in every administrative centre of a city, town or local municipality, ensuring availability of municipal and state-level public services at a single location.

Next, the State Regional Development Agency plans to improve and develop the catalogue of public services, in order to align with the Directive 2006/123/EC of the European Parliament and the Council on services in the internal market. [29]

2.6   EGOVERNMENT ROADMAP, COUPLED WITH GOALS, VISION AND STRATEGY

The 'eGovernment Development Plan (2011-2013)' is a short-term development planning document primarily based on the 'National Development Plan 2007-2013' (NDP). It introduces 192 actions
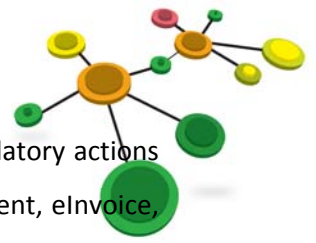
which aim to boost eGovernment, to strengthen state policy and to complement regulatory actions in a wide range of domains (e.g. eSkills, broadband access, eIdentification, eProcurement, eInvoice, eJustice, eHealth, mobility and social security) by taking into account the priorities of the EU Ministerial Declaration on eGovernment policy and the EU Digital Agenda for Europe.

Activities are being implemented within the framework of projects funded by the European Regional Development Fund (ERDF), the European Social Fund (ESF), the Latvian and Swiss cooperation programme funds, and the national budget. [30]
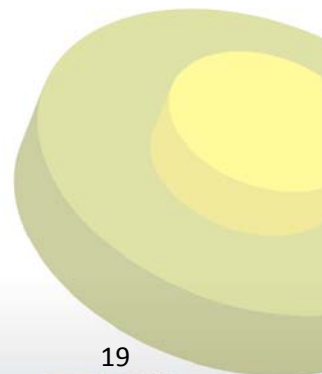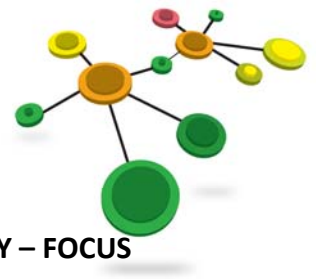
3. ORGANIZATIONAL ASPECTS

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

Transparency

Improved communication with the public 31:

- can access e-services at any time;

- recipients must have a computer with Internet connection and an appropriate authentication means;

- provides a comprehensive public awareness of government work;

- provides greater openness and accessibility of government services to recipients posing a higher understanding of work of public administration and development opportunities;

- democratizing institutions – accessible to the public, increasing transparency, creates trust, consisting of service monitoring and transparency of the process;

- providing a service is adapted to customers' interests and preferences, personalized services are offered interactive dialogue;

- quality, reliability and participation, accessibility and efficiency as key values.

Monitoring of responsibilities

Co-ordination of the Activities of the State Information Systems:

- the Ministry of Regional Development and Local Government shall co-ordinate the activities of the State information systems within the framework of the integrated State information systems, implementing a unified State policy in the field of development and maintenance of State information systems;

- the procedures for supervising development projects for State information systems, as well as the general technical and security requirements for State information systems shall be regulated by Cabinet Regulations;

- the Ministry of Regional Development and Local Government shall co-ordinate research and investments for the establishment of integrated State information systems and the improvement of activities of State information systems, attract experts for expert examinations of the State information systems and shall submit recommendations to the Cabinet regarding the development of State information systems;
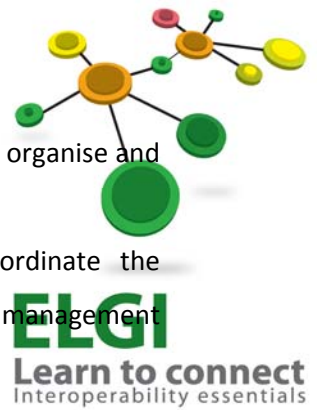
- the Ministry of Regional Development and Local Government shall co-ordinate, organise and manage the activities of the State information system register;

- the Ministry of Regional Development and Local Government shall co-ordinate the establishment, maintenance and activities of the State information systems management integrators;

- the procedures for the establishment, maintenance and activities of the State information systems management integrators, as well as the procedures by which the functioning of State information systems is ensured within the framework of integrated State information systems, utilising the State information systems management integrator, shall be determined by the Cabinet.

Validation and better data management

Online services help to validate and manage the data stored in the State information systems. Citizens can update their information using online services and such action allows actualizing the information in State information systems more quickly.

For example, State Land Service can be mentioned there – which allows citizens to unregister inexistent auxiliary premises from cadaster, basing on documents issued by the municipality.

As an additional benefit of eGovernment is that different State institutions can interact between each other, which in case saves pupil time, resources required to process specific requests and so, expenses.

Uniqueness of data processed

As we have centralized platform for e-services development, uniqueness of data processed is checked by support personnel and developers of e-services. Every new e-service likely always uses some existing e-services or components of existing platform (such as payment module, authorization module etc.). So there is lower possibility that some data processing will be duplicated – at least the steps mentioned minimize that possibility.

Administrative load reduction (time savings) [32]

Institution's function optimization with e-service integration gives the following advantages:

- allows you to automate and accelerate many internal processes, simplifying everyday employee work and improving its efficiency and quality;
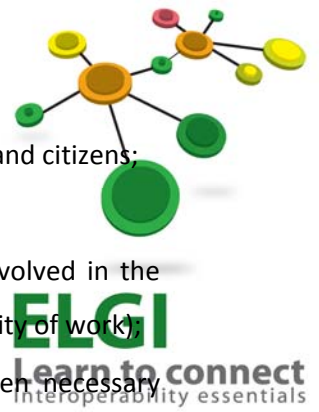
- faster and better communication between institutions and between institutions and citizens;
- more efficient service and request reception;
- opportunity to improve processes, increasing their effectiveness (structures involved in the processes can do more in less time using fewer resources and improving the quality of work);
- possible to plan for staff workload shifting to back-office work and only when necessary attracting full-service process.

<u>Administrative load reduction (Costs savings) [33]</u>

Reduced administrative costs – save time and money – many operations are automated, reduced on-site visits, reduced service and document turnover costs.

Administrative load is decreased by improving and optimizing the workflows, internal processes and functions.

Real life example about "Who is registered in my property?" question from citizen. Without e-service this request was handled within 5 working days involving 4 instructions' employees. One citizen handling required >4 LVL expenses.

After inventing the e-service for this operation it requires only few minutes and does not involve any persons (except the citizen). E-service expenses for each citizen are less than 1 LVL (there are 100 000 requests per year).

eSignature can be mentioned as an example of cost-saving e-service: in comparison with paper format, electronic documents signed with the eSignature allow optimization of costs for stationery and document delivery, as well as ensuring that the time and skills of the responsible officials are used more appropriately. You can sign and send documents from anywhere in the world, where Internet connection is available. Optimum storage in data form. No need for maintaining extensive archives. The catalogue structure can be changed conveniently and easily if required. Natural resources, stationery, printing materials, as well as transportation resources are not wasted by using the eSignature.

<u>Better accessibility to online services</u>

There is a special website 34 which provides simplified access to online services and allows searching services by keywords. Citizens can access online services right from this site. Services are also grouped in directories for simplified navigation.
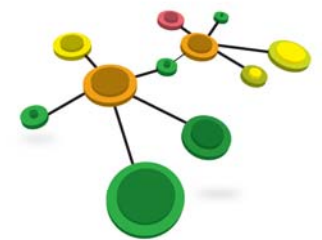
Briefly about site content:

- directory of Public services is the Point of Single Contact about services offered by Latvian public administration for citizens and businesses;

- point of Single Contact provides guidance on requirements (forms, documents, payments, terms etc.) and necessary administrative procedures that need to complete in order to receive public and/or municipal services. If the given service is offered online, users may use this given service directly from the Directory of Services;

- guidance on public institutions and competent authorities in Latvia;

- Points of Single Contact allow service providers to obtain information through single entry point and complete required administrative procedures electronically in order to commence provision of services in a chosen business sector in Latvia.

Better accessibility to documents

As an example of improved document accessibility The Ministry of Culture's website can be mentioned, which provides information about public libraries and links to the websites of the different libraries, many of which have their own electronic catalogues. A National Unified Library Information System is currently being implemented, which will link Latvia's around 2.000 public libraries through a single network and produce a unified library catalogue. Users will be able to search the catalogue and order the necessary print works, which will be delivered through the library that is closest to their place of residence. The unified system is already in place in eight libraries that are deemed to be of national importance.

Reusing of existing IT infrastructures, services and their monitoring

It is very common in Latvia that Bank authorization system is used to authenticate a person. So to start using some e-service the user must login using bank authentication (he/she can also choose one from most popular banks which are in cooperation with State information). This approach is good because it saves expenses for developing, testing and maintain the secure authentication system which implements different secure authentication mechanisms such as code cards and code calculators.

When developing new State e-services there are always components that are reused from State Integrated Information system – such as payment, authentication (which uses certified e-signature, Mobile ID and internet bank authentication), reports, auditing and other modules. [35]
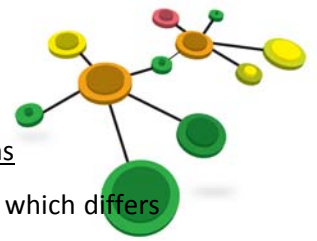
Homogeneity / compliance of online services' front-end provided by public organizations

Almost all of the departments provide their own unique front-end with custom design which differs from one institution to another. For example the following institutions with their homepage addresses can be listed:

- Office of the President: http://www.president.lv
- Cabinet: http://www.mk.gov.lv
- The Latvian Parliament: http://www.saeima.lv/
- Ministry of Defense: http://www.mod.gov.lv/
- Ministry of Foreign Affairs: http://www.am.gov.lv/
- State Agency "The Latvian Institute": http://www.li.lv/
- Children and Family Affairs: http://www.bm.gov.lv/
- Economics Ministry: http://www.em.gov.lv/
- Ministry of Finance: http://www.fm.gov.lv/
- Ministry of the Interior: http://www.iem.gov.lv/
- Ministry of Education: http://www.izm.gov.lv/
- The Ministry of Culture: http://www.km.gov.lv/
- Welfare: http://www.lm.gov.lv/
- Regional Development and Local Government Affairs: http://www.raplm.gov.lv/
- The Ministry of Transport: http://www.sam.gov.lv/
- Ministry of Justice: http://www.tm.gov.lv/
- Ministry of Environment: http://www.vidm.gov.lv/
- Ministry of Health: http://www.vm.gov.lv/
- Ministry of Agriculture: http://www.zm.gov.lv/

The only homogeneity of such services is the way how they are represented in the State portal www.latvija.lv. Each service has its title, brief description, instructions and link to start the service.

Capability to provide and manage online payment services by online outlays

Rekini.lv is an internet portal providing a possibility to apply for and receive e-bills from companies that have joined the rekini.lv system (currently there are 44 companies listed on the website). Users of rekini.lv are in position to choose how to receive bills from companies in future. In the list of applied companies there are also State institutions and citizens can apply for e-invoices from them.
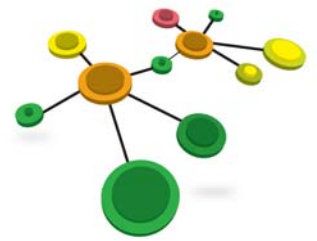
Customer satisfaction, feedback analysis to identify or define better services

Recent survey "DNB Latvian barometer" No. 44 [36] shows that in general 56% in the last year have taken a roll, and 42% would prefer to use e-services, if there were options to choose from. In comparison: 1/3 of the respondents will select other (in person, by phone, mail) services. The most common of eServices offered was variety of payment and other banking operations (53%), as well as Internet shopping (29%). While the least likely people said that during the past year they have taken advantage of e-signatures (3%). When asked why, in their opinion, this Latvian e-service is still so low, some of the reasons given were lack of information on the receipt and use of facilities (37%), as well as the fact that people still prefer paperwork "tangible" form (31%). The survey data suggests that people who use roll see both advantages and disadvantages. In terms of benefits, respondents more often mentioned the benefits for themselves as e-service users, not to the state or local government as service providers. More than half of the key benefits offered by the e-services.

They were used to save resources (time, money, etc.) (60%) and services used outside institutions working time (54%). As main disadvantages of these services it is recognized that not all public access to the Internet (59%) and not everyone knows it well enough how to use them (56%).

Citizens' collaboration and e-participation

Recent survey "State institutions and local government experience on a daily basis electronically by citizens submitted questions, and how to better organize and answer most frequent responses", which surveyed 269 public authorities and the "Citizens' survey asking questions about state and local authorities", which electronic form was filled in 755 questionnaires.

Population survey aimed to find out public opinion on the need for electronic services, which includes combining all state and local authorities asked questions and answers provided to them. Asked about the need for a single question and answer site. As a whole, public attitude is positive and more than half of respondents admit that this type of site will reduce the time spent for searching answers. Whereas 26% would be interesting to know the answers to others' questions. [37]

Latvia, in 2004) was in the list of countries with lowest level of e-participation with index ~0.1 (of 1.0 maximal value). [38]
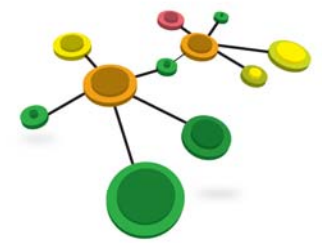
Multi-channel PA services

"i2010 – A European Information Society for growth and employment" adopted by the European Commission on 01 June 2005. The basic action lines of the Programme are: to improve state and municipal information technology infrastructure and collaboration between State Registers, to create new channels for government services based on the one-stop agency principle, to develop new e-services – primarily the most required by citizens and business, to improve the quality of public services using information and communication technologies (ICT) solutions, to create new state information systems and to develop municipalities' information systems.

This will ensure the possibility for residents to receive state and local government information and services, using one-stop agencies, various telecommunication services and Internet connections, giving residents the opportunity to freely choose their preferred communication and interaction channel with public administrations.

According to a recent survey performed in State Institutions about e-documents, there are multiple ways of servicing citizens:

- personally (8.6%);
- by post (72.4%);
- by registered letter via post (14.9%);
- with courier (2.3%);
- electronically (1.8%).

So as it's mentioned, only 1.8% documents are serviced electronically. [39]

Others organizational advantages

Services are available regardless of the business hours and location. Service adjustments for customer's interests and preferences. Personalized services, offering an interactive dialogue. Faster and better exchange between institution-institution and institution-citizen, efficient service providing and reception. Reduction of administrative costs due to internal processes optimization and automation, administrative apparatus and burden load reduction. Successful communication with the community, greater awareness of decision making process. [40]
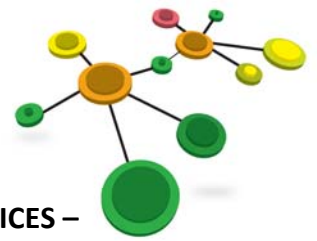
3.2 ORGANIZATIONAL ADVANTAGES OF INTEROPERABILITY OF ONLINE SERVICES – FOCUS ON PA VS PA RELATIONSHIP

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

E-Governance: such an exchange of data gives an opportunity to decrease circulation of paper documents, and accelerate the administrative process; thus the possibility to receive the necessary municipal service is significantly accelerated.

The Joint Information System for Municipalities (JISM) is used by more than 120 local municipalities every day, and this number is constantly increasing. The functionality of the JISM is constantly being expanded and improved in respect to the legal acts, policy planning documents and municipalities' requirements. The software of the JSIM is accessible to every municipality of Latvia.

Responsibility

Policy/Strategy:

The Minister for Special Assignments for Electronic Government Affairs was appointed in the new Latvian Government approved by Parliament in December 2004. The Minister holds political responsibility for the development and implementation of the state policy in the field of electronic government and Information Society. He is also in charge of organizing the activities related to the implementation of information technologies in state administration to ensure the modernization and effectiveness of state administration.

Coordination:

The Secretariat of the Minister for Special Assignments for Electronic Government Affairs is responsible for eGovernment, information society and information technology policy development, implementation and coordination. The Secretariat is facilitating and coordinating the development of local governments electronic services and represents the country's interests in relevant international organizations and EU institutions. The Secretariat also has responsibility to ensure the operation of the Information Society National Council and the Electronic Government Coordination Council, and to coordinate the cooperation of state administration and local government institutions in the development of electronic services. [41]

Validation/data processing

The Joint Information System for Municipalities (JISM) is in 138 local municipalities every day. The functionality of the JISM is constantly being expanded and improved in respect to the legal acts, policy planning documents and municipalities' requirements. The software of the JSIM is acces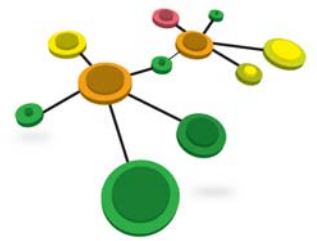sible to every municipality of Latvia. Currently the system consists of three main elements which are joined together – citizen registry, State land register and Road Traffic Safety Directorate (CSDD).

There are plans for the future to add more registers and systems to the JISM – Real Estate State Cadaster Information System, State Address Register, State Social Insurance Agency and others.[42]

Uniqueness of data processed

To identify the necessary improvements of state and local government authorities information system data exchange, the Environmental Protection and Regional Development and the State Regional Development Agency (SRDA) calls national and local authorities to complete the questionnaire "Public information system needs for data exchange."

Survey's results summarized can make it possible to identify the necessary improvements in State information systems for data exchange between public administrations and local governments. These improvements are also related to the uniqueness of data processed – survey result will make it possible to identify problematic places where some data is duplicated etc.

Administrative load reduction in terms of time savings

After introducing Latvian e-procurement system [43], State institutions got the following advantages:

- the Latvian e-procurement system frees financial resources for each buyer, which can be used for further development, which is especially valuable in the crisis environment;
- due to centralization of the procurement processes, suppliers can also reduce their expenditures on preparation of proposals to tender;
- the system described does not discriminate small and medium enterprises.

The Latvian Electronic Procurement System [44] provides to its users such possibilities as:

- faster procurement process – shortened time from acknowledging the need till purchase of the good;
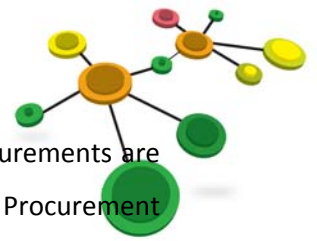
- state and municipal institutions do not have to organize procurements – procurements are organized unitary by ordering the goods with the help of the Electronic Procurement System.

Impact on Buyers:

- the purchase procedures for the products available in EPS changes, no price quotations are needed anymore since the system performs that function by indicating the prices of available products;

- less administrative recourse is needed to make procurements order. Less paper;

- the approval process changes since approvals for EPS purchases has been done electronically within EPS.

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

E-procurement system in Latvia [45] provides to its users the following advantages:

- state and municipal institutions do not have to organize procurements – procurements are organized unitary by ordering the goods with the help of the Electronic Procurement System;

- state budget resources are saved because when several orders are combined in small procurements better prices are offered;

- system users can save time and money by using standardized processes of doing their business.

Documents' accessibility

The improvement of documents accessibility in PA with PA connection can be achieved by usage of State Integrated Information System (ISIS) which is available to all of the government institutions.

There institutions can easily access external documents from other municipalities reducing the time required to handle queries from citizens.

Integration of State Information Systems [46]:

Providing information exchange between systems, according to the function of exercising the State Information System integrator has been established and maintained and has two main functions:

- to unify and centrally manage the integration of platform independent standardized data exchange between national registries and information systems;
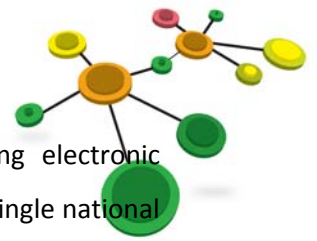
- to provide a platform for sharing resources and public administration using electronic services` creation and delivery. Together with the Latvian state portal creates a single national electronic service delivery platform.

Already a single platform for all government institutions makes it possible to use the following shared components without creating customized solutions:

- a single e-service portal environment, www.latvija.lv;

- the user authentication mechanism (currently providing authentication via Latvia's e-signatures and the bank's banking authentication tools);

- payment service – an option to process payments for online e-services (using the internet banks);

- e-signature functionality – the opportunity to prepare a framework and the authority to submit an e-signed documents, etc.

3.3 REUSING OF EXISTING INFRASTRUCTURE AND SYSTEMS

When developing new government e-service there are always existing information systems which work in a certain institution. When a new service is integrated into ISIS platform, it interoperates with the existing information system in the corresponding institution as processed data almost always is stored in an appropriate institution as also query processing usually is performed on the institution's site.

State institutions use ISIS also to manage and control their e-services provided to the public. Integration of the developed systems is performed centralized – this increases the integrity and reliability of the services.

3.4 HOMOGENEITY / COMPLIANCE OF ONLINE SERVICES' FRONT-END DELIVERED BETWEEN PUBLIC ORGANIZATIONS

No information about "front-end" delivered by public organizations.
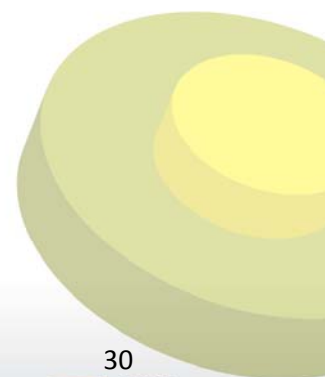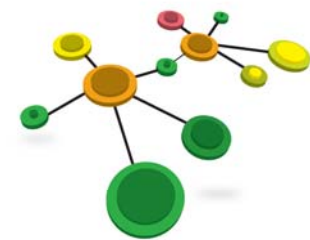
3.5 DEFINITION AND ADOPTION OF PRECISE EXPERTISE

To promote eGovernment implementation at the municipal level, there were 10 Latvian competence centres created[1], which are coordinated by the State Regional Development Agency (SRDA). Two local competence centres have teaching classes. They regularly hold courses for local government employees about information systems usage.

Municipal IT competence centre aims to provide support to all local municipalities for maintaining and implementing eGovernment solutions at local and regional level.

3.6 OTHERS ORGANIZATIONAL ADVANTAGES

Actually the same advantages as mentioned in PA vs Citizens relationships.

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

By digitalizing the services, the institutions optimize their activities and provide inhabitants and companies with more qualitative provision of the state administration' services. This gives the institutions a common platform for creating the e-services and their provision in the united state and municipal services' portal www.latvija.lv.

While working for the development of the e-services, it is important to create a national support point for the Insafe network in Latvia, and to achieve that the utilization of internet and modern communication technologies is safer. It is also important to prevent dissemination of illegal content in internet and involve society and internet service providers in creating a more qualitative information environment:

- improve access to and utilization of digital content;
- create an EU level joint access to the e-procurement processes and normative environment.

To promote development of an effective, economic, open and democratic state administration, and in order to promote development of the state administration services, a new policy initiative includes several activities:

- development of e-elections information system;

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[1] http://www.vraa.gov.lv/lv/e-serviss/competence/

- coordination of the joint information systems (central registers) – Population Register, Electors' Register, and other joint information systems;

- ordering different e-services, e.g., electronic references and licenses, submitting different applications, etc;

- introduction of electronic identification and authentication;

- promotion of introduction of a safe e-signature;

- coordination of different state administration service development channels.

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

According to the VARAM report for 2011 [47] , multiple eGoverment projects of reengineering took place in Latvia and following e-services were implemented:

- E-customs data processing system design, development and maintenance:
  - customs declaration and other customs documents for electronic submission and processing of the single e-customs data processing system (EMDA);
  - online customs payments;

- International cargo logistics and port information system:
  - standardized information and documents submitting and transfer for international freight transport actors involved in the process;
  - information on cargo status, statistical reports and other information;

- Joint Welfare Information System (LabIS), information system for the industry's centralized functions and centralized infrastructure development:
  - E-service for granting unemployment benefit;
  - E-Service "Sickness" (grant of benefits to temporary incapacity and death);
  - E-Services "pension / benefit grant and client data changes without customer presence";
  - E-Service "Authorisation of an employer (E 101 certificate)";
  - Exchange of information between EU countries in electronic form.

See also "Uniqueness of data processed".

3.9 CERTIFICATION PROCESS FOR INTEROPERABILITY

Security of State Information Systems Possible threats to the State information systems (SIS), where important information of national interest, protected by laws, international treaties and other laws
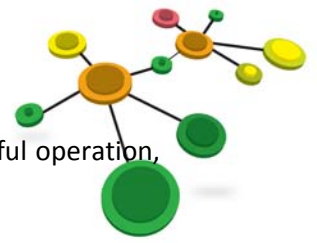
and regulations is processed, as well as important information for institutions successful operation, security is one of the key factors to be observed in the SIS design and maintenance.

The head of an institution is responsible for SIS security in the institution. Security Manager assures the security requirements are met and the authority which maintains the SIS is required each year to carry out security audit of the SIS.

The existing security manager in the state institution, taking into account recommended guidelines, implements and organizes the SIS security management according to the Cabinet of the Ministers 11.10.2005. regulations No. 765 "General Security Requirements of State Information Systems", international standards and good practices in IS security management field. [48]
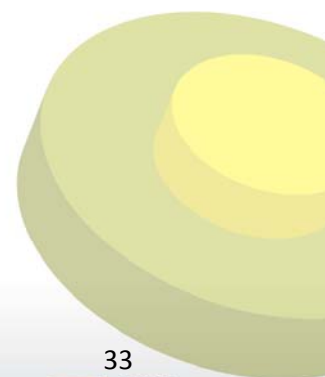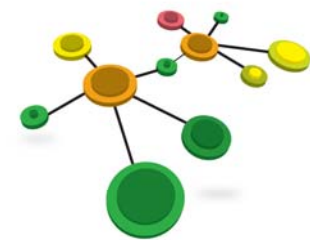
4. TECHNOLOGICAL ASPECTS

4.1 ANALYSIS OF ADMINISTRATIVE INFORMATION SYSTEMS THAT MEET INTEROPERABILITY REQUIREMENTS

ISIS – service oriented architecture based web platform which is used to build any government e-service. All development is based on Microsoft ASP .NET web services using C# – at least all the tutorials and guidelines for developing of new components are created for C# programming language.

Together with these also XML Schema and SOAP technologies are used to interoperate and communicate between different services.

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

Standard 1: (brief description of the innovations introduced)
Information systems, e-services development and integration tasks cannot be imagined without the data syntax and semantic matching, which today is the basis for any successful IT project for the country and the state size. For this purpose, ISIS selected the W3C XML schema language that supports namespaces, data type definition and module schemas design.

The document contains principles and rules for XML-schemes used in National projects of integration. A guidelines and rules include indispensable conditions imposed on structure of XML schemes and their maintenance, and also the recommendation for their development. The given document is intended for web services and XML-schemes developers who operate in the government and commercial sectors of Latvia. [49]

Standard 2: (brief description of the innovations introduced)
This document is to define the development guidelines for electronic services of state and municipal institutions, design guidelines and conceptual solutions to serve as the basis for e-services in a systematic and harmonious development. [50]
The document is created to:

- define the Integrated State Information System (ISIS) solution architecture components and services for;
- describe ISIS subsystem conceptual design;

- describe the physical location of the system;
- develop production and test environments' description;
- create a summary of technologies used.

Standard 3: (brief description of the innovations introduced)

This paper describes the guidelines that determine and impact e-service development process through ISIS infrastructure as well as describes e-services implementation without the technical aspects of specific technology applications.

The document isn't intended for the description of legislative or organizational actions of e-service development and integration processes. It describes detailed technical aspects of service integration to ISIS platform with sample source code fragments. [51]

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

There are 3 adopted standards in Latvia related to interoperability [52], namely "XML shēmu izstrādes vadlīnijas v1.01" (guidelines for XML schema design), "E-pakalpojumu arhitektūras apraksts un izstrādes vadlīnijas v.1.1.3" (guidelines for E-services architecture and design) and "E-pakalpojuma izveidošanas ceļvedis Latvijas valsts portālam v1.4" (wizard of E-service creation for Latvian State Portal) and as well six guidelines related to ISIS development.

4.4 EXISTING METHODOLOGIES IN THE MANAGEMENT OF IT SERVICES

There are several rules and regulations developed for defining methodologies and management of software development – Law on State Information Systems and Information system security regulatory framework for financial and capital market participants. Law on State Information Systems regulates the security management of State information systems and to regulate co-operation of the State information system managers.

Electronic Government Department develops and implements national policies in the fields of electronic government, information society development and public information systems development, ensuring the management of European Union's Structural Fund financial assistance programs and projects, coordination and monitoring of their implementation; elaborates policy for the implementation of public administration electronic one-stop-shop principle, plans and coordinates its implementation.

There are the following divisions in the department – Electronic Services Division, State Information Systems Division, Information and Communications Technology Policy Division and Electronic Government Development Instruments Division.

Electronic Services Division creates the eGovernment policy, including electronic services and electronic services infrastructure, as well as elaborates policy for the Implementation of public administration electronic one-stop-shop-principle, plans and coordinates the ITS Implementation.

State Information Systems Division creates the national policy on information systems development, including the national information system architecture and interoperability policies as well as the national information system maintenance and security policy and a policy of government information technology development and management.

Information and Communications Technology Policy Division creates the policy of information society development, plans and coordinates its implementation, participates in the elaboration of eGovernment policy, public information systems development policy.

Electronic Government Development Instruments Division provides policy for The European Union's Structural Fund financial aid programs and projects in the field of Electronic Government - Programme and management, coordination and monitoring of their implementation.

The Ministry of Regional Development and Local Government is the main institution which develops methodologies for State IT services. [53]

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

Information systems, e-services development and integration tasks cannot be imagined without the data syntax and semantic matching, which today is the basis for any successful IT project for the country and the state size. For this purpose, ISIS selected the W3C XML schema language that supports namespaces, data type definition and module schemas design. [54]

The document contains principles and rules for XML-schemes used in National projects of integration. Guidelines and rules include indispensable conditions imposed on structure of XML schemes and their maintenance, and also the recommendation for their development. The given document is intended for web services and XML-schemes developers who operate in the government and commercial sectors of Latvia.

4.6 MAIN LANGUAGES AND ENVIRONMENTS ADOPTED

Accordingly to E-service architecture definition and implementation regulations developed by ISIS, the following technologies are adopted and involved:

- XML, XSD and XSLT for data exchange, all with UTF-8 encoding;
- NET 2.0 for all synchronous service development;
- BizTalk 2006 – for orchestration and integration services;
- WSDL – for service information definition;
- ASPX – for developing web pages and forms;
- Visual Studio 2005 (C#) – for application development.

There are also standards for code formatting and commenting defined in regulations' document. There are special tools developed by ISIS such as proxy class generation from WSDL and .NET class code generation from ISIS schema XML structures. [55]

4.7 AUTHENTICATION TOOLS FOR ELECTRONIC IDENTIFICATION INTEROPERABILITY

There are only two main authentication tools used in State information systems for citizens – using banks' information systems and "Latvia Post" electronic signature service.

ISIS platform itself uses these tools and saves other developers from requirement to perform authentication of user as that is already done internally in ISIS platform. Special service "Security tickets" is responsible for authentication data management and it is used centrally by all internal and external applications, services and web-pages. [56]

4.8 TOOLS FOR UNATTENDED ACCESS TO SERVICES AND INFORMATION IN PUBLIC PLACES

Using European funds, several projects were developed for creating public places for unattended access to the internet.

The aim is to increase access to the Internet as much as possible for different community groups, promoting public access to government and commercial companies offering electronic and other services and information, and to promote citizens' participation in the social, economic and cultural processes and improve their quality of life.

There are more than 400 public internet access points available in different Latvia regions.

4.9 ACTIVATION AND DELIVERING OF SERVICES WITH A WEB 2.0 LOGIC

ISIS and Latvija.lv websites are developed using Microsoft .NET technology with ASPX web-pages based on Microsoft IIS server and with MS SQL Server back end. However some other State information systems use PHP, but other institutions may use also Java technology with JSP web-pages and Oracle databases in back end (such as Latvia State Woods agency – http://www.lvm.lv/eng/).

There are no guidelines or rules for technologies to be used when implementing state information systems. In 2010 Latvia started work on EU project OSEPA ("Open Source software usage by European Public Administrations") whose target is to draw attention to the potential benefits of open source software in public administration and to identify barriers to its implementation and dissemination. [57]

4.10 ONLINE SERVICES DIRECTORY AND/OR SEARCH ENGINE PLATFORM FOR PA ONLINE SERVICES

There are two main websites which provide search and directory service for PA online serivices – www.latvia.lv and www.epakalpojumi.lv. Citizens can access online services right from this site. Services are also grouped in directories for simplified navigation. The second website has created a number of integrated e-services, which gather data from the Latvian authorities, State institutions
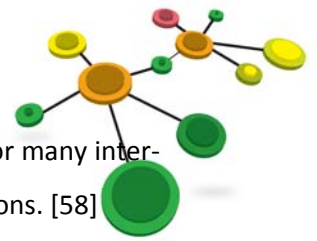
and commercial companies. Portal integration of e-business environment is the basis for many inter-agency e-services. The portal is available to both private and corporate authorized persons. [58]

4.11 RE-ENGINEERING OF ADMINISTRATIVE INFORMATION SYSTEMS: TECHNOLOGICAL ASPECTS

By digitizing the services, the institutions optimize their activities and provide inhabitants and companies with more qualitative provision of the state administration' services. This gives the institutions a common platform for creating the e-services and their provision in the united state and municipal services' portal www.latvija.lv.

While working for the development of the e-services, it is important to create a national support point for the Insafe network in Latvia, and to achieve that the utilization of internet and modern communication technologies is safer. It is also important to prevent dissemination of illegal content in internet and involve society and internet service providers in creating a more qualitative information environment:

- improve access to and utilization of digital content;
- create an EU level joint access to the e-procurement processes and normative environment.

4.12 WEB-SERVICES ADOPTION

Integration platform ISIS is using Web Services Description Language (WSDL) technology for integrating all the State e-services. Communication and request handling between State institutions' servers and ISIS platform is performed using XML data packets. XML is used also by Latvija.lv portal to receive the requested information from ISIS system.

For e-services XML XSD and XSLT technologies are used – one for defining data packet structures and the other for transforming results into target XML structures.
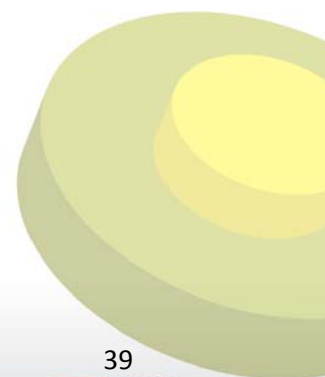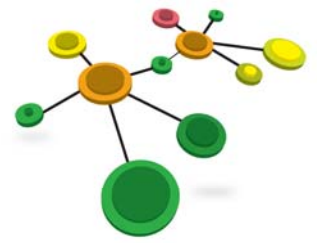
5. BEST PRACTICES AND SYSTEMS ON TRIAL

5.1 BEST PRACTICE

The passport system and joint migration information system (VMIS) for issuing electronic ID cards and the electronic residence permit (card).

Benefits of the project:

Issuing of ID cards is provided, creating a wide range of personalized electronic services and electronic signature user base and as a result, State and local government administration will have high customer on-site visits and related to that service cost reductions.

Reliability and trust of inhabitants for electronic communication facilities will rise. One tool of authentication will replace all individual commercial systems of authentication developed before which forced the user to remember incalculable quantity of passwords and usernames. Thanks to the system of electronic authentication and the possibility of remote signing of electronic documents it is expected that the commercial sector also will develop new and innovative electronic services, thereby promoting growth of the state economy and export development.

On basis of data from (05.04.2012) the Office of Citizenship and Migration Affairs, in the first week of eID card availability there was a huge interest in it – 3251 persons received new identification cards.

The greatest interest in the identity cards in the first week was in Riga, as almost half of all applications were received in the wards (1555). Outside the capital the most active people applied for the new document was in Daugavpils (161), Jelgava (131), Valmiera (129) and Liepaja (105). New documents in the first week were requested by Latvian foreign citizens as there were 69 applications submitted to the Latvian embassies abroad. [59]

Starting with identity card (or an electronic identification card) eID and residence permits, rapid growth in the services provided by the CMA (Citizenship and Migration Affairs) is forecasted, which will result in additional load on existing resources and information systems. Therefore, in case of the increased demand, in order to offer quality services to customers as soon as possible, CMA planned to improve information systems and to provide full tech support with personal identification documents, public records and migration management related processes. So far all or part of these processes have been carried out manually in CMA offices.

The "Passport System and Common Migration Information System (VMIS) development for electronic ID cards and electronic residence permit (cards) issuing" are 100 percent sponsored by the
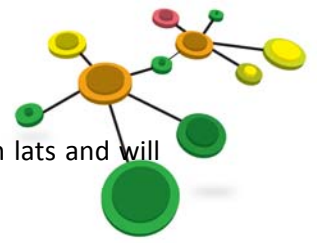
European Regional Development Fund. The total cost of planned work is 2.529 million lats and will be implemented by June 30, 2012. [60]

The Office of Citizenship and Migration Affairs is a state institution under the supervision of the Ministry of Interior of Republic of Latvia and is responsible for issuing of identity and travel documents, maintenance of the Population Register, determination of the legal status of persons and naturalization, implementation of state migration policy, including development and implementation of repatriation and asylum policy. [61]
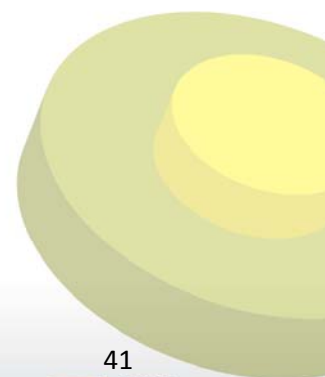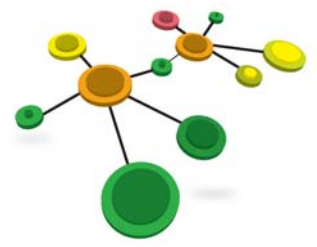
5.2   SYSTEM ON TRIAL

LOMS

Using this public service users can buy a fishing license and register the fish caught. This service is in trial mode and is still in development stage. Still only a small amount of lakes and rivers registered there. [62]

The service allows you to:

- do a lake/river search by various criteria;
- get information about lake/river and licensed angling organizers;
- purchase and print your fishing license;
- record caught fishes.

INFORMATION SOURCES

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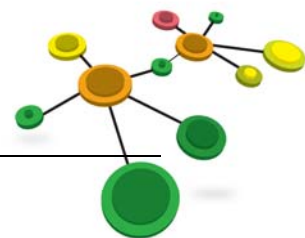
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