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Information Society Development Guidelines
2014–2020
(Informative part)

Riga, 2013

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Used Abbreviations and Explanations of Terms

MoD – Ministry of Defence
API - application programming interface(s)
Open data – machine-readable data which are technically (advisable by using the Internet) and legally made available to the public for their free use and further distribution where reasonable privacy, safety and authorship provisions may be set
Open interfaces – interfaces for access to machine-readable data and processes created on their basis which are technically and legally made available to the public for their free use
CERT.LV – Information Technology Security Incident Response Institution
CRM – customer relationship management
Computer science – a field of science which includes comprehensive scientific research related to computers, software, computer technologies and intellectual systems. The computer science investigates computer architecture and hardware, programming languages and systems, software structure principles, system designing methods, data processing systems and computer networks, as well as the usage of computers in specific areas where the main focus is not so much laid on the specific character of the particular area, but rather on the general software or hardware principles
DSI – Data State Inspectorate
ECDL – European Computer Driving Licence
EC – European Commission
e-document – electronic document
eID – electronic identification
e-procurements – electronic procurements
e-commerce – realisation of business activities by means of electronic communication, including the Internet
MoE – Ministry of Economics
e-services – electronic services
e-signature – electronic signature
e-government – electronic government
e-mail – electronic mail
ERDF – European Regional Development Fund
e-invoice – electronic invoice
EU – European Union
ESF – European Social Fund
e-health – usage of ICT in the public health products, services and processes along with organisational changes in health care systems and for the acquisition of new skills in order to improve the health of the population, efficiency and productivity of the provision of health care services and economic and social value of health. E-health involves interaction between patients and health care service providers, data transfer between institutions, as well as mutual communication of patients and/or health care specialists
IPE – Institute of Physical Energetics
MoI – Ministry of the Interior
GDP – gross domestic product
ICT – information and communication technologies
ICT user – a person who uses ICT for their daily needs, incl., for entertainment, communication, etc.

ICT practitioner – a person who uses ICT at work and in business activity for the promotion of innovation and development

ICT professional – a person who ensures development, working out and maintenance of ICT systems, products and solutions

Re-use of information – use of the information possessed by an institution which is performed by physical or legal persons for commercial or non-commercial purposes, which is not the initial purpose of use for which the information has been obtained and prepared by performing the tasks of the institution. The exchange of information between institutions by implementing their administration functions and tasks is not re-use of information

Information technology – a field of science where research is related to the business aspects of informatics and computer systems. The research object of the field is obtaining, processing and use of information in physical systems with a purpose to perform their classification, description, analysis, designing, production, maintenance and management. Analysis and synthesis of the real system structures, as well as processes taking place in them are made in the field, as well as development of the creation of abstract, algorithmic and physical system models, technical realisation of business systems, computer technologies for maintenance and management of these systems on the basis of obtaining information and knowledge, their representation and processing, modelling and imitation, metrology, designing, evaluation and selection of alternatives, optimisation, decision making, automatic regulation, computer control, training, adaptation, identification and solutions of diagnostic problems

Information literacy – the ability to find, select, evaluate, manage and use information

Innovation or innovative activity – the process where new developments and technologies of scientific, technical, social, cultural or other fields are implemented in the market as a saleable and competitive product or service

IS – information system(s)

IT – information technologies

MoES – Ministry of Education and Science

CISC – Culture Information Systems Centre

KNAB – Corruption Prevention and Combating Bureau

Communication science – a field of science where the importance of information and its functioning in society and human life is investigated. It includes investigation of the types of obtaining and transmission of information (radio, press, television), substantiation of the necessity of information, analysis of perception and effect of information, its storage and use, impact of information on social communication, formation and functioning of public opinion

MoC – Ministry of Culture

LIA – Latvian Internet Association

LIAA – Investment and Development Agency of Latvia

LLU – Latvia University of Agriculture

MoW – Ministry of Welfare

NLL – National Library of Latvia

LEGMC – State limited Liability Company “Latvian Environment, Geology and Meteorology Centre”

LSFRI – Latvian State Forest Research Institute

LVRTC – State Joint-Stock Company “Latvia State Radio and Television Centre”

Cloud computing – data processing technology by which software is accessed on the Internet. A user has access to his/her data, but he/she does not have to maintain the infrastructure, operating system and personal software

Machine-readable format – a digitised file format which is structured in a way so that it is easy to identify and recognise applications, as well as obtain specific data including individual units and their internal structure
CoM – Cabinet of Ministers
IA – Insolvency administration
SMEs – small and medium-sized enterprises
NAP 2020 – National Development Plan of Latvia for 2014-2020
2013-2020
NVA – State Employment Agency
NVO – non-governmental organisation
CSCC – Cross-Sectoral Coordination Centre
MoT – Ministry of Transport
CA – The Court Administration
MoJ – Ministry of Justice
RE – Register of Enterprises
SAP – state aid programme
MEPRD – Ministry of Environmental Protection and Regional Development
SJSC – State Joint-Stock Company
SIPCR – The State Inspectorate for the Protection of Children's Rights
Health literacy – a person's general ability to obtain, process and understand basic information about health and health care services including medical treatment in order to accept appropriate decisions important for health
SIS – State information system(s)
VISC – National Centre for Education of the Republic of Latvia
SC – State Chancellery
MoH – Ministry of Health
SFSB – State Forensic Science Bureau
SLS – State Land Service
LR - Land Registers
MoA – Ministry of Agriculture

Introduction

Information Society Development Guidelines 2014-2020 (hereinafter referred to as "Guidelines") are worked out in order to continue the current action policy in the field of information society development and determine the priorities of the ICT field for the EU Structural Funds planning period 2014-2020. The Guidelines are a medium term development planning document worked out by the work group for a period of seven years under the management of MEPRD. The work group consisted of representatives from the Ministry of Defence, Ministry of Foreign Affairs, Ministry of Economics, Ministry of Finance, Ministry of the Interior, Ministry of Education and Science, Ministry of Culture, Ministry of Welfare, Ministry of Transport, Ministry of Justice, Ministry of Health, Ministry of Agriculture, State Chancellery, associations of ICT field, Latvian National Commission for UNESCO, Latvian Chamber of Commerce and Industry, Employers' Confederation of Latvia and Latvian Association of Local and Regional Governments.

1. Description of the current situation in the field of information society

Upon implementing the Information Society Development Guidelines 2006-2013, the following activity results and performance indicators specified in the Guidelines were achieved (see Table 1):

Table 1

Achieved policy results and their performance indicators

Performance indicator	**Planned indicator**	**Actual indicator**[1]			
	2005	**2009**	**2013**	**Latvian indicators**	**EU average indicators**
Proportion of private persons (16-74 years old) who use the Internet on a regular basis	36%	50%	70%	73% (2012)	74% (2012)
incl. in rural areas	15%	40%	60%	66% (2011)	*Is not measured*
Proportion of households (with 16-74 year old inhabitants) having a broadband Internet connection	15%	40%	59%	67% (2012)	73% (2012)
Proportion of staff using a computer and the Internet on a daily basis[2]	16%	35%	55%	73% (2012)	74% (2012)
Proportion of the ICT field in GDP	6%	7.5%	9%	3,3% (2011)	5%
Proportion of enterprises performing e-government transactions	3%	20%	40%	72% (2010)	76% (2010)

[1] *Eurostat* database

[2] It is not measured, substituted by the proportion of private persons (16-74 years old) who use the Internet on a regular basis

Proportion of inhabitants using distance education services	8.7%	17%	25%	38% (2010)	34%
Proportion of inhabitants making e-health transactions[3]	0.1%	1%	5%	38% (2011)	38% (2011)
Company turnover from selling on the Internet	0.46%	8%	15%	7% (2012)	15%
Proportion of inhabitants who shop on the Internet	3%	20%	35%	18% (2011)	35% (2011)

Upon evaluating the performance indicators set for the development planning period 2006 -2013, it may be concluded that in six of the ten planned indicators the value to be achieved until the end of 2013 was already achieved in the period from 2010 to 2012. On the other hand, due to the lack of appropriate statistical data it is not possible to evaluate the indicator "Proportion of inhabitants making e-health transactions. A more equivalent *Eurostat* indicator to it is the proportion of inhabitants who use the Internet for searching for information related to health in which Latvia lagged behind the EU average indicator in 2007 by 13 percentage points, but in 2011 it has reached the average level of the EU. It must be concluded that the increase of the ICT field in GDP is forecasted too optimistically until 2013 by planning that it will reach the level of 9%. In accordance with the data of the Central Statistical Bureau its actual value in Latvia in 2011 reached 3.3% of GDP, experiencing an annual fall since 2008 in the amount of 0.1 percentage points, which could be explained by the beginning of the economic crisis in 2008, while the average EU indicator of the same year reached the level of 5% (pursuant to the *Eurostat* data). Lagging behind the set forecasts is also observed in the indicator "Company turnover from selling on the Internet" and the indicator "Proportion of inhabitants who shop on the Internet" which may be explained by the still insufficient trust of consumers and entrepreneurs in transactions in digital media, insufficient offer of online services and digital skills for their use.

Several important measures have been taken within the development planning period for 2006 - 2013 which have affected the information society development – an arranged regulatory enactment base, the Internet has become more accessible, a safe e-signature has been introduced, the Latvian State portal www.latvija.lv has been created, the number of e-services has gradually increased. Implementation of the aforementioned measures has mainly been possible due to the possibilities of receipt of the financing of EU Structural Funds (for example, according to the supplement to the Operational Programme "Infrastructure and Services" of the planning period of EU Structural Funds of 2007 – 2013, within the framework of Subactivity 3.2.2.1.1 "Development of Information Systems and Electronic Services" the available total financing constitutes LVL 96 944 798). In general, wider ICT possibilities have become more available for the population of Latvia and performers of business activities, as well as the e-skills of society have improved.

A wider report on the final impact assessment of the Information Society Development Guidelines 2006 – 2013 is included in the appendix where the assessment of the improvement plan of the use of the Electronic procurement system for 2010 – 2012 developed on the basis of the Guidelines is provided (Order No. 231 of 22 April 2010 of the CM "On the Improvement Plan of the Use of the Electronic Procurement System for 2010 - 2012"), Electronic government development plan for 2011 - 2013 (Order No. 218 of 25 May 2011 of the CM "On the Electronic

[3] It is not measured, substituted by the indicator "Inhabitants seraching for information related to health on the Internet"

Government Development Plan for 2011 - 2013") and Electronic skills development plan for 2011 - 2013 (Order No. 207 of 18 May 2011 "On the Electronic Skills Development Plan for 2011 - 2013").

The experience obtained in the development planning period of 2006 - 2013

During the introduction of the Information Society Development Guidelines 2006 - 2013 valuable experience has been obtained which should be taken into account when planning the information society development for 2014 - 2020:

- out of ~600 public administration services whose electronisation would be useful[4] approximately 240 services have been electronised. Within the EU Structural Funds' planning period 2007 – 2013 e-services in the field of health, education, welfare and social services have been created; several services have also been created for entrepreneurs – registration of an electronic enterprise and other services of the Register of Enterprises; e-services of the State Environmental Service, e-services of the State Labour Inspectorate, etc. 61 e-services were available in the portal www.latvija.lv in September 2013, the most popular of which were application for studies in a higher educational institution, declaration of a place of residence, personal data in the Population Register. In 2012 the number of times e-services were used in the portal www.latvija.lv exceeded 1 million. An Electronic procurement system is developed having constantly increasing turnover (for example, in 2012 it constituted LVL 18.27 million which is 37% more than 2011). A material contribution has also been made to the conservation of cultural heritage by making a digital library and other e-services. Wider information about the possibilities developed in the period of 2006 – 2013 is available on the MEPRD home page[5]. Similarly, due to the support of EU Structural Funds electronic identity cards have been introduced which also include the identification and electronic signature tools necessary for the receipt of e-services.

However, there is still large unrealised e-government potential. Furthermore, the number of electronised services as such does not imply efficient public administration. Electronisation of services must be examined in the context of public administration processes which must be made more efficient by using technologies. Therefore, it is necessary to connect the development of technologies with analysis of the activity processes in particular fields before the introduction of the respective technology, thereby arranging the processes and preventing situations when ICT solutions are introduced according to the scheme provided for paper documents, without reviewing the essence of the processes, but only providing their electronisation. Therefore, within the development planning period of 2014 - 2020 optimisation of processes must be set as the leading motive, while the development of ICT, information systems and e-services serves as a means and promoter of optimisation of the public administration processes.

Development of e-services within the period of 2006 – 2013 was one of the obligatory components in the development and improvement of information systems. Although in part of the cases implementation of the remote provision of services was motivated in such a way, the first results show that part of the established e-services does not completely satisfy the needs of end-use, especially in the cases if several institutions or departments are involved in the process. It is also seen that the use of the established remote service opportunities and obtaining of the

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[4] MEPRD ESF project No. 1DP/1.5.1.2.0/08/IPIA/SIF/002 "Improvement of the Pulic Service System" – Evaluation and classification results of all the public services implemented by the State, page 24 http://www.varam.gov.lv/lat/fondi/ESper07_13/15120/?doc=15503

[5] Summary of ICT activity projects and their results of the ERDF funds being under the management of MEPRD: Round 1 www.varam.gov.lv/lat/fondi/ESper07_13/32211/?doc=13340; Round 2: www.varam.gov.lv/lat/fondi/ESper07_13/32211/?doc=13371

indicators specified in the project are not always purposefully promoted (the situation has improved along with the introduction of the necessity to develop the project (incl. e-service) implementation plans).

The end-uses (e-services) are also inflexible from a technical point of view and difficult to apply to constantly variable changes of the technical media and new applications. The life cycle of the projects of EU Structural Funds, the most often used *waterfall* development method[6] and the duly unplanned funds for further development and maintenance of services, cause the situation that the initially intended adjustment of the services after the commencement of their real activity is very encumbered or practically impossible.

Therefore, larger emphasis must be laid on the development of open interfaces within the planning period of 2014 - 2020 by providing the preconditions for the development of end-uses in business activity. In order to ensure sustainability of the end-uses they must be developed by observing specific principles and preconditions (an explanation on how the open interfaces and opened data affect the development of business activity is included in Subchapter 5.4 Action direction "E-Services and Digital Content for the Public").

On the other hand, it is necessary to train the public administration staff on the activity process and introduction, as well as management of the best practice processes of ICT infrastructure so that the process optimisation provides the desirable result.

- irrespective of the considerable increase of the number of electronised services during the development planning period of 2006 - 2013, there is still a low proportion of inhabitants who use e-services[7], as well as little use of the opportunities offered by ICT in business activity. For example, in 2012, 9% of enterprises received orders via the Internet (the average EU indicator – 16%), while e-commerce in business activity was used by 7% of enterprises (the average EU indicator – 14%)[8]. The data of the survey[9] conducted at the end of 2012 show that there is a low level of knowledge about electronic access to services and distrust in the Internet media. That implies that the measures aimed at the communication of e-government development with society, explanation of the e-government benefits, education of the service users, as well as explanation of the safety aspects of the electronic media use have been insufficient. Within the development planning period of 2014 – 2020 more attention should be paid to these aspects, otherwise a high risk will remain that the investments made in e-government development cannot provide a return because the e-services created as a result of these investments are not used by society.
- the state information systems and e-services in the EU Structural Funds' planning period of 2007 – 2013 are basically established according to the needs of the particular institution with insufficient coordination of their development with other institutions who are involved in the ensuring of the relevant public administration process. Due to a lack of coordination the requirements for data exchange and integration with the information systems of other institutions were often not identified in due time and that has been the reason for delay of the projects, as well as mutual interoperability solutions of information systems and public administration processes worked out to be of insufficient quality. Approval and introduction of the concept

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[6] Successive development of the ICT project by strictly observing the Project phases and tasks.

[7] Public opinion assessment on the use of e-services in Latvia. December 2012.
http://www.varam.gov.lv/lat/publ/petijumi/pet_Eparv/?doc=14321

[8] *Eurostat* database

[9] Public opinion assessment on the use of e-services in Latvia. December 2012.
http://www.varam.gov.lv/lat/publ/petijumi/pet_Eparv/?doc=14321
information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

"Organisational Model of State Information and Communication Technology Management"[10] is an important precondition for the improvement of coordination within the development planning period of 2014 - 2020, however, effective coordination mechanisms are still to be developed for the management of mutually related projects.

- the common use potential of ICT infrastructure has been exploited insufficiently. The frequently observed practice in the development planning period of 2006 - 2013 – the ICT infrastructure is also included in each information system development project for ensuring the operation of the relevant information system. Thereby, reinvestments are made in the ICT infrastructure. This does not comply with the good practice of ICT management because centralised platforms of ICT infrastructure are more useful to make, which are able to provide the necessary ICT infrastructure resources both at the department level and national level, by using modern technologies in a flexible way according to the safety requirements. Therefore, activities for the development of centralised platforms must be envisaged within the development planning period of 2014 – 202, thereby optimising the ICT infrastructure in the public administration.
- Synergy from the electronisation of the public administration processes, availability of e-services and readiness of the private sector to use electronic solutions which could allow an increase in the activity efficiency of public administration institutions by optimising and modifying the administration processes was not sufficiently used in the EU Structural Funds' planning period of 2007 – 2013. The usage of such synergy would ensure the creation of innovative solutions. Failure to use such an approach relates to the concentration of attention on electronisation of the operation processes within the framework of each institution and according to the activity processes of the paper document flow. Therefore, the activities for the modifying of public administration activity processes to "only electronically" must be envisaged in the planning period of 2014 – 2020 which allows all the opportunities provided by the available ICT technologies to be used more efficiently.
- open data usage possibilities are provided in the public administration in individual exclusive cases only. By providing free access to the data possessed by the State, a possibility of immediate involvement of the private, non-governmental and scientific sector is created in the development of e-services and ICT products based on the State data, as well as for immediate analysis and investigation of the situation, thereby promoting the economic development of the State, creation of work places, as well as modelling and expectation of social processes.

On the other hand, in order to promote cooperation and mutual interaction of the public and private sector solutions, as well as to create the preconditions for the development of such uses which differ from the ones initially planned, which are able to operatively adjust to the current technology possibilities and are sustainable, more emphasis should be laid on the development of the open interfaces (API) for the provision of public services.

- in the EU Structural Funds' planning period of 2007 – 2013 the focus has been laid on e-government development at the national level. However, a large part of the e-services are not adjusted in order to ensure the establishment of cross-border e-services and interoperability of the national systems at the European level because several cross-border cooperation projects and initiatives in Europe were only started during the EU Structural Funds' planning period of 2007 - 2013, and, planning the activities of the period at the national level, the results to be achieved were still not predictable or were not clear enough (for example, the project STORK was started in 2008, while the project SPOCS was started in 2009). The digital single market remains the leading motive of the *Digital Agenda for Europe*, and Latvia must make its contribution to the

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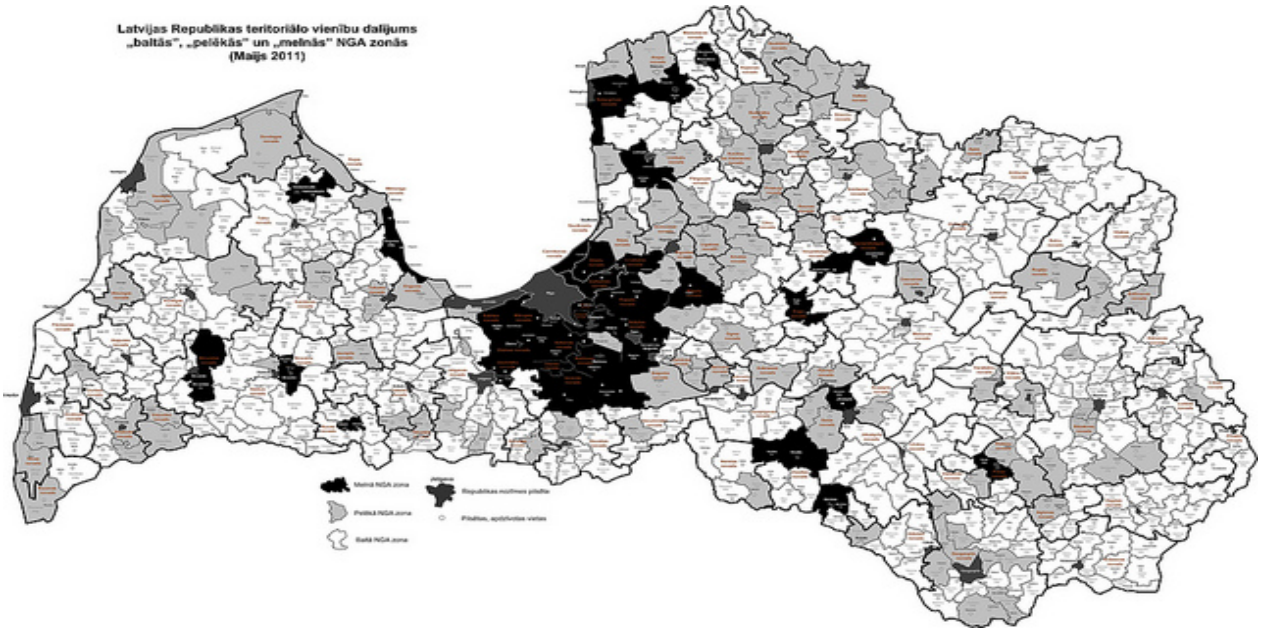
[10] Concept "Organisational Model of the State Information and Communication Technology Management" http://www.likumi.lv/doc.php?id=254909
information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

development of the digital single market. Therefore, more attention should be paid to cross-border cooperation within the EU Structural Funds' planning period of 2014 - 2020.

- in the planning period of 2007 –2013 the Internet access infrastructure established within the framework of the project "Broadband Communication Infrastructure Development in Rural Areas" financed by the ERDF is not able to ensure the use of ICT corresponding to the constantly increasing requirements in households, enterprises and institutions, because the use of new equipment (smartphones, tablet PCs, etc.) and new electronic communication services (for example, cloud computing, three-dimensional (3D) and high resolution television) cause a considerable increase in the amount of transferable information in electronic communications networks. Appropriate use, quality and safety of the electronic communications services will only be ensured for users by the next generation broadband electronic communications network. Thereby, development of the broadband network is started – the middle mile or transport network development project, within the framework of the first round of which it is planned to build approximately 1900 km of optical cable routes and establish 165 optical network access points. According to the order of the Ministry of Transport in 2011 research[11] was conducted, within the framework of which electronic communications merchants and local governments were surveyed. It was stated that in 363 territorial units (parishes and regions consisting of one parish), i.e. in 71.2% of the territorial units of Latvia, none of the electronic communications merchants provide, nor plan to provide Internet access services with improved data transmission parameters during the next three years by providing data transmission services of improved quality and with a speed of at least 30 Mbit/s (according to the *Digital Agenda for Europe* for all Europeans by 2020 and 100 Mbit/s for at least 50% of European households)[12] (see Picture 1 ""the white" NGA areas").

Picture 1



[11] Consultation material about the infrastructure development project of the optical transport network ("the middle mile") of electronic communications http://www.sam.gov.lv/satmin/content/?cat=451&art_id=2384

[12] Digital Agenda for Europe, 26 August, 2010 COM(2010)245 information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

Therefore in the development planning period of 2014 – 2020 the broadband network development must be continued by planning both the second round of the middle mile project, the activities focused on the development of the last mile and grids, as well as mapping of the current electronic communications network infrastructure. It should be noted that the Internet access development is an important precondition for ensuring the availability of e-opportunities and services in the entire territory of Latvia, i.e., they are available if the Internet is available in the respective territory. Taking into account that approximately half of the inhabitants[13] of Latvia live in the countryside of Latvia, it is important to ensure the high quality availability of services in rural areas by promoting the remote receipt of services as much as possible all around Latvia thereby facilitating equal living and working conditions for all inhabitants of Latvia.

High quality and available business, educational, social and health care services by using modern e-opportunities is an important condition for the involvement of people and business activity development in rural areas.

2. Linkage with other development planning documents

Linkage with Latvian development planning documents:

- Sustainable Development Strategy of Latvia until 2030 (approved by the Saeima on 10 June 2010);
- National Development Plan of Latvia for 2014 - 2020 (approved by the Saeima on 20 December 2012);
- National Reform Programme of Latvia for implementation of the "EU 2020" Strategy (minutes No. 64 of the meeting of 16 November 2010 of the Cabinet of Ministers, Paragraph 57 "Draft National Reform Programme of Latvia for implementation of the "EU 2020" Strategy");
- Concept on Introduction Possibilities of a Uniform Authentication Mechanism in the State Information Systems (Order No. 140 of 30 March 2011 of the CM "On the Concept on Introduction Possibilities of a Uniform Authentication Mechanism in the State Information Systems");
- Concept "Organisational Model of the State Information and Communication Technology Management" (Order No. 57 of 19 February 2013 of the CM "On the Concept "Organisational Model of State Information and Communication Technology Management"");
- Concept on Improvement of the Public Service System (Order No. 58 of 19 February 2013 of the CM "On the Concept on Improvement of the Public Service System");
- Concept on Development of a Uniform Geospatial Information Portal (Order No. 737 of 27 November 2007 of the CM "On the Concept "On Development of a Uniform Geospatial Information Portal"");
- Latvian Geospatial Information Development Concept (Order No. 718 of 20 November 2007 of the CM "On the Latvian Geospatial Information Development Concept");
- Guidelines for the Electronic Communications Sectoral Policy for 2011 – 2016 (Order No. 151 of 13 April 2011 of the CM "On the Guidelines for the Electronic Communications Sectoral Policy for 2011 – 2016 of the Republic of Latvia");
- Concept for the Development of Next Generation Broadband Electronic Communications Networks for 2013 - 2020 (Order No. 589 of 7 December 2012 of the CM "On the

[13] In 2010 49% of inhabitants lived in the cities of Latvia, 38% of inhabitants lived in the countryside and 13% of inhabitants lived in the suburbs

information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

Concept for the Development of Next Generation Broadband Electronic Communications Networks for 2013 – 2020");

- Guidelines of the State Language Policy for 2005 - 2014 (Order No. 137 of 2 March 2005 of the CM "On the Guidelines of the State Language Policy for 2005 - 2014");
- National Industrial Policy Guidelines for 2014 - 2020 (Order No. 282 of 28 June 2013 of the CM "On the National Industrial Policy Guidelines for 2014 - 2020");
- Guidelines of the Family State Policy for 2011 - 2017 (Order No. 65 of 18 February 2011 of the CM "On the Guidelines of the Family State Policy for 2011 – 2017");
- Public Health Guidelines for 2011 - 2017 (Order No. 504 of 5 October 2011 of the CM "On the Public Health Guidelines for 2011 - 2017");

<u>Linkage with development planning documents being worked out:</u>

- Regional Policy Guidelines for 2013 – 2019 (draft);
- Employment and Inclusive Growth Guidelines for 2014 - 2020 (draft);
- Implementation Guidelines of the United Nations Convention on the Rights of Persons with Disabilities for 2014 - 2020 (draft);
- Education Development Guidelines for 2014 - 2020 (draft);
- Guidelines for the Development of Science, Technology and Innovation for 2014 - 2020 (draft);
- Guidelines of the "Latvian Information Technology Safety Strategy for 2013 - 2018" (draft);
- Cultural Policy Guidelines "Creative Latvia" for 2014 - 2020 (draft);
- Latvian Geospatial Information Development Concept (draft).

<u>Linkage with EU development planning documents:</u>

- Europe 2020. Strategy for Smart, Sustainable and Inclusive Growth, 3 March 2010, COM(2010)2020);
- Digital Agenda for Europe, 26 August, COM(2010)245);
- Digital Agenda for Europe - Driving European Growth Digitally, 18 December 2012, COM(2012)784);
- European eGovernment Action Plan 2011-2015. Harnessing ICT to promote smart, sustainable and innovative Government, 15 December 2010, COM(2010)743);
- Ministerial Declaration on eGovernment of Malmo, 18 November 2009);
- Grand Coalition for Digital Jobs, 4 March 2013);
- Entrepreneurship 2020 Action Plan, COM(2012)795);
- eHealth Action Plan 2012-2020 - Innovative healthcare for the 21st century, 6 December 2012, COM(2012)736);
  The Joint Communication by the Commission and the High Representative of the European Union for Foreign Affairs and Security Policy "Cybersecurity Strategy of the European Union: An Open, Safe and Secure Cyberspace, 7 February 2013, JOIN(2013)1).
- Commission Recommendation on the Digitisation and Online Accessibility of Cultural Material and Digital Preservation, 27 October 2011, C(2011)7579 final);
- European Strategy for a Better Internet for Children, 2 May 2012, COM(2012)196).

3. Goals and Fundamental Principles of Information Society Policy

At international level fundamental principles of information society have been adopted on December 2003 during World Summit for Information Society, which is an international podium for a dialogue between countries and international organisations on global society's progress in conditions of continuous information and communication technology development and information volume increase. Overall, eleven key principles were defined to build a comprehensive information society – to improve access to ICT infrastructure, provide access to information and knowledge, increase competencies, increase trust and security regarding the usage of ICT, create an advantageous environment for the ICT usage, use ICT in all aspects of life, facilitate diversity and identity, develop digital content, avoid limitations in the usage of ICT in media, address ethical aspects of information society, as well as to facilitate international and regional collaboration.

Based on the experience acquired during the implementation of Information Society Development Guidelines 2006-2013, as well as analysing priorities on the national level, the definition of the **guidelines goal** is the following: to provide an opportunity for everyone to use the possibilities offered by ICT, to develop an knowledge-based economy and to improve the overall quality of life by contributing to the national competitiveness, and increasing an economic growth and job creation.
Action directions and planned activities defined to reach the goal of the guidelines are described in Section 5 "Action Directions to Reach the Goal and Solve the Existing Problems".

Leitmotif of the guidelines is economic growth and job creation. The actions in each of action directions envisaged in the guidelines are pointed towards enhancement of competitiveness in terms of economic growth and job creation. For this purpose a special attention in the guidelines is drawn to introduction of open data principle in public administration, which covers previously undervalued potential of the digital economy development by changing information resources, which arise in public administration with the aim to ensure the implementation of public administration functions and tasks, into new innovative business ideas and services, which can increase profit and create jobs.

Significant factors are also the enhancement of e-skills and improvement of Internet access and speed, which is an essential prerequisite for e-commerce and business in general, since the opportunities for the public to use modern ICT solutions, which have become an integral part in almost every domain, are limited without e-skills and high-speed Internet.

Another important focal point of the guidelines for promoting economic growth is a determined reduction of administrative burden by managing optimisation and improvement of efficiency of public administration basic activities, as well as the simplification for receiving public services by means of ICT features and tools. Thus, the administrative burden for entrepreneurs and related costs will reduce and that will allow concentrating more resources on the business itself. By reducing administrative burden it is expected to increase the number of those entrepreneurs (especially SMEs), which until now have been deterred from commencing their businesses or official registration due to the complexity and unwieldiness of bureaucratic procedures.

3.1 Basic Principles in the Field of Information Society[14]

*** access to information:** to create an opportunity and means to access and use information and ICT for each and every person; thus ensuring human rights, enhancing education, regional development, poverty reduction, gender equality, digital inclusion, overall availability, public transparency, effective use of resources and society involvement.
*** development of information literacy:** to create, support and enhance strategies, means and methodologies in order to develop abilities and skills to use information and ICT in all domains and for all social groups at all formal and informal educational levels offering opportunities provided by various information management models. Information literacy covers also abilities and skills, which relate to security and reliability in electronic environment. It is essential to strengthen research and technology innovation capabilities that are focused to knowledge building, as well as the national and regional information content creation.
*** legal and regulatory framework:** to develop the required legislation, which guarantees rights to information and enhances information and ICT availability and usage, concurrently strengthening information security and protection.

3.2 Strategic Framework of e-Governance

Taking into account that one of the significant aspects of information society politics and guidelines is the e-governance aspect, which in the framework of the guidelines has been implemented in five[15] out of seven action directions defined in the guidelines (*Modern and efficient public administration, e-services and digital content for the public, ICT education and e-skills, Cross-border cooperation for Digital Single Market and Trust and security*), as well as taking into account that it is planned to attract co-financing of the EU Structural funds for the implementation of the e-governance aspect; the e-governance strategic framework (Fig. 1) is created based on ICT governance best practice principles. This characterises the most essential elements that should be provided and whose balanced development and successful interaction are the precondition for the development of e-governance.

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[14] UNESCO *National information society policy: a template. Paris, November 2009.*

[15] Action directions *"Widely Available Access to the Internet"* and *"ICT research and innovation"* refer to information society in general
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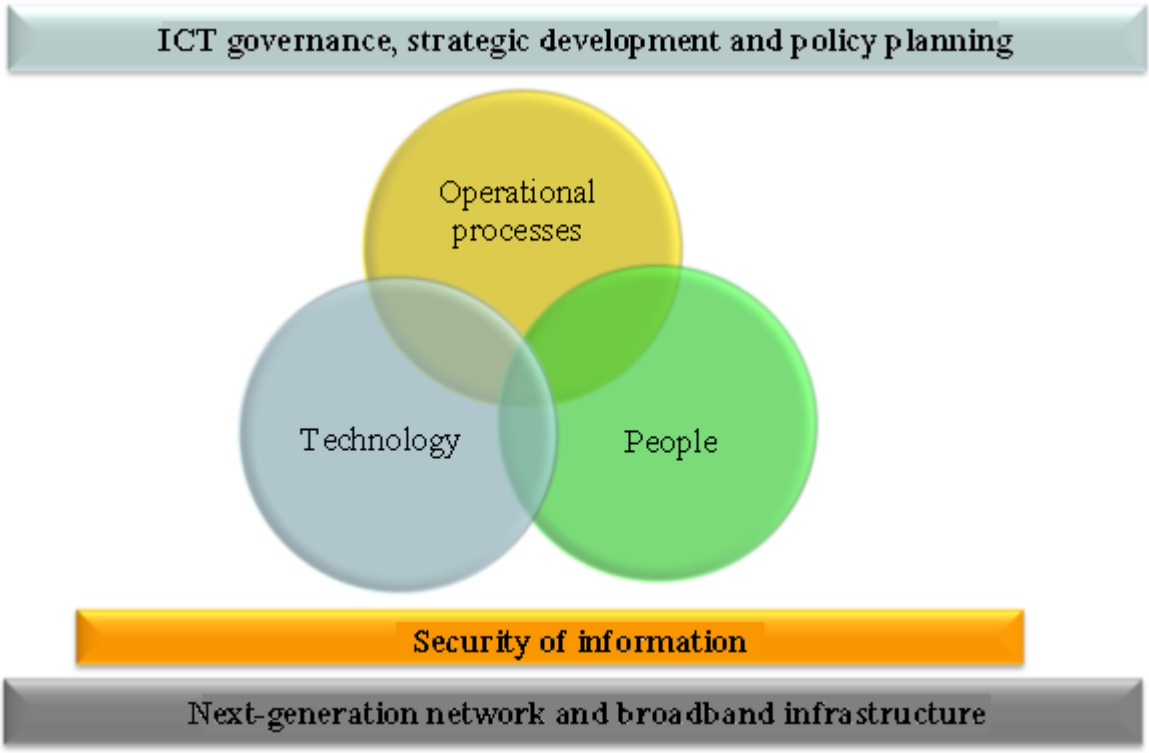
Fig. 1

Strategic Framework of e-Governance



ICT governance, strategic development and policy planning

Clearly defined State ICT governance principles[16], information society development policy and e-governance planning basic principles are the foundation for a successful e-governance development. The main goal of ICT governance is to use and develop the State ICT architecture, technical resources, processes and human resources for State governance process and State development priority support[17]. Meanwhile high level protection of personal data has to be provided, including assessment of personal data protection before processing of personal data, ensuring the implementation of integral personal data protection and personal data protection by default principles.

Operational processes, technology and people

Development and interaction of three basic elements have to be guaranteed in the e-governance development. That means:

*** operational processes**. Information Systems (IS) and e-services development make sense only if it has previously identified administrative services and operational processes used for their

[16] Concept "Organisational Model of State Information and Communication Technology Governance" (Cabinet Order No. 57, "On Conception "Organisational Model of State Information and Communication Technology Governance"") adopted 19 February 2013.

[17] Concept "Organisational Model of State Information and Communication Technology Governance" (Cabinet Order No. 57, "On Conception "Organisational Model of State Information and Communication Technology Governance"") adopted 19 February 2013.
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provision, for support of which appropriate information systems and e-services are required, the analysis of these processes has been done, process improvements, which can be implemented with the help of ICT, are identified. If that will not be accomplished and if no process improvement activities will be planned in the development project, then there is a high risk that the investment technologies will not provide a return – the usual inefficient practice will be continued only with addition of new and expensive technologies. For example, in electronic environment the processes in which various statements from other state institutions are requested from the person are inefficient because electronic environment allows eliminating the requests for statements from a person. If the statements are retained in the electronic environment, then the operational processes are organised ineffectively.

* **technology**. In order to use ICT resources usefully, an interoperable public data infrastructure based on open standards and centralised platforms should be created, which could be used as common use resources both at department and national levels taking into account corresponding security requirements. However, the existing solutions that do not comply with these principles should be gradually modified for open standard usage considering lifecycle and usefulness of the technologies.

Long-term usage of open standards provides a platform independent environment for data matching and usage, which is a significant aspect taking into account that the volume of system and solution integration and matching is increasing, and it is necessary to provide the most universal method for communication with solutions of various developers. Usage of open standards provides preconditions for flexible usage of various solutions, which stimulates competition and rules out the possibility to become dependent from one developer.

Fragmentary solutions and investments in closed and incompatible solutions should be avoided. The possible negative consequences of the development of completely decentralised e-governance solutions are higher expenses (e.g., due to duplication of homogeneous solutions), as well as additional expenses that arise from the development of specific integration solutions and the most important – from their maintenance in future. Considering that modern systems rarely are independent from the necessity to collaborate with other systems – the long term development of closed (specific) solutions may result in higher expenses for the provision of integration, as well as limited competition, which causes risk of inadequate expenses. It is important to employ such technologies and multichannel strategies that could furnish e-governance services in the most effective and secured way, including the development of comprehensive services in order to reduce obstacles faced by digitally and socially isolated groups, usage of mobile technologies, etc.

* **people.** Process-oriented thinking, operational process analysis skills, ability to find shortcomings in processes and employment of technologies must be stimulated in public administration in order to improve processes, hence reducing administrative burden and facilitating productivity of the performance. To involve experts in public administration who know how to convert needs into clearly defined functional demands, who have understanding of the required service standards, applicability, security, performance requirements, which will have to be implemented for ICT solutions, to provide the required quality standard of ICT projects and the further successful maintenance of these projects. Facilitate comprehension level of all employees in public administration regarding the possibilities that may be provided by more efficient information circulation and ICT technologies along with the expenses related to these

solutions and the required resources. Also, a comprehension regarding ICT project management methodologies and ICT solution maintenance should be improved. The development of the mentioned competences is a precondition for the successful implementation of high quality, effective and user-friendly e-governance solutions. It is similarly important to inform public regarding the developed and implemented e-governance solutions, to explain and demonstrate the solution usage benefits for both inhabitants and entrepreneurs, reliability and secure usage of these solutions and to promote electronic channels for connection with public administration. Therefore, it is important to continue the development of e-skills for various public target audiences. Without the above mentioned actions, usage of e-services will remain at low level, guidelines' objectives will not be reached, as well as the funds invested in e-governance development will not provide return.

Security

Security has to be a cornerstone of the ICT development and utilisation; nevertheless, the organisation of security has to be performed and technologies have to be chosen advisedly in order on the one hand to cover the security in the entire lifecycle of ICT (starting with the development of the information security management system, definition of the security policy, inclusion of the requirements, resulting from the security policy, in ICT procurements and their implementation supervision, evaluation of personal data security aspect prior the implementation of ICT) and on the other hand investments in security solutions should be proportional to the possible threats, including corresponding security level regarding the typical risks of personal data process and the features of protected personal data. Security planning, based on the risk analysis that evaluates political, economical, sociological, personal data protection, and legal aspects allow to build public administration processes and ICT solutions rationally and efficiently ensuring respective security and personal data protection levels.

One of the fundamental elements that affects the security is an ICT user. The knowledge, experience and culture – point of view, assumptions, behaviour and attitude – of an ICT user are factors that should be taken into account when developing ICT solutions, particular attention paying to ICT applicability; nevertheless, it is similarly important to build ICT user's comprehension regarding the secure usage of technologies.

Next-generation network and broadband infrastructure

The goal of the guidelines cannot be reached without the development of broadband infrastructure. The availability of broadband infrastructure is precondition for digital content availability to inhabitants; therefore, the development of broadband infrastructure has to be continued during development planning period for 2014-2020 ensuring public access to a high-speed Internet connection (information is included in Section 5.2 "Action Direction "Widely Available Access to the Internet").

3.3 Basic Principles of e-Governance Planning

Supported activities which are not in conflict with the defined basic principles of e-governance, and implementation of which will enhance the improvement of entrepreneurship environment and creation of new jobs (all of the mentioned principles are equally important):

a. Public administration Data for Economic Development:

1. open data:
* when building new and developing the existing IS, the compliance with open data principle should be included in the framework of the system evaluating the possible utilisation of data sets and accessibility of user groups, data quality and recovery;
* the data possessed by the State should be both legally and technologically accessible for common use and re-use considering personal data protection and limited accessibility information aspects, as well as the terms of re-use;
* information resources, whose provision, preparation, processing, maintenance and delivery to users (digitalised materials and data sets) is fully provided within the framework of public funding (State or local government budgetary subsidy, financing of EU Structural funds), are available free of charge for public administration institutions for common usage.
* if a fee is foreseen for the use of the information possessed by a State sector institution it should not exceed the reproduction, provision and distribution marginal costs of these resources, exceptionally, this condition may not be applied to:
- institutions, which are inquired to make a profit to cover a significant part of expenses that relate to the execution of public functions assigned to them;
- the cases prescribed in legal acts – information[18], regarding which respective institutions are inquired to make revenue to cover significant part of expenses that relate to information aggregation, production, reproduction and distribution;
- libraries, including university libraries, museums and archives;
- the fee set in the exception principles is applied considering only objective, visible and verifiable criteria, which are prescribed in legal acts. The estimation base for such fee is defined in advanced and published. In justified and defined exception cases institutions' overall revenue from information provision and re-use allowance in corresponding accounting period, shall not exceed aggregation, production, reproduction and distribution expenses (for libraries, museums and archives, as well as – expenses related to rights acquisition) together with proportional profit from capital investment.
* the required funding for the basic activities of public administration institutions shall be planned and provided independently from revenue which may result from the re-use and common usage of the information owned by the institutions.

2. partition of data and services
* IS architecture is built in order to provide options for connection to a database and building new services for operations with IS data by using documented data structure and application programming interface (API);
* Self-service and data issue solutions are provided in API development as well, organising the issuing as centralised as possible.

b. rational ICT governance:

1. while developing State governance ICT solutions, institutions evaluate the solutions existing in public administration, including already developed software component and source code usage;

[18] According to Directive 2003/98/EC of the European Parliament and of the Council on the re-use of public sector information
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for the support processes – also utilisation of standard products. Solutions developed using public funding shall be used by public administration institutions free of charge;

2. re-use of public administration data shall be provided;

3. ICT resources of State are used optimally; technical and software resources are shared; centralised ICT platforms are utilised and developed in case of necessity for the improvement of IS and register interoperability;
4. the basic e-government infrastructure elements that can be shared in various sectors, have been built and developed, as well as the support is provided when possible for connection of institutions system to base infrastructure elements;

5. in order to provide sustainability of state ICT solutions and to reduce lifecycle expenses of the solutions, IS maintenance phase has been planned within each IS and project framework focusing on operational process, interface and data exchange transformation support needs during the exploitation of IS;

6. cross-border collaboration:
* when developing State ICT solutions, institutions are using national and EU shared platforms and components if available;
* solutions have been developed according to standards and specifications accepted at the EU level.

c. effective operational processes:

1. ineffective public administration operational processes have been optimised:
* the main aspect is the improvement of ineffective, irrationally organised and inconvenient operational processes. The development of e-services and IS are supportable as means of public administration operational process improvement;
* an efficiency analysis or, in case of necessity, reorganisation of an operational process has been performed before digitisation of a service or process.

2. coordination:
* when changing cross-sectoral operational processes, a coordination mechanism and process manager have been provided in the level of operational process;
* when developing a institution's processes support IS, whose operational process covers collaboration of several cross-sectoral processes, a coordination of involved parties has been provided.

3. analysis of operational processes:
* ICT tools for data analysis and planning have been used during the process organisation and policy-making;
* activities directed towards the development of an operational process analysis and operational process monitoring tools and platforms.

4. data quality:
* an "administrator", who is responsible for data quality and security, is identified for each data set;

* quality of basic data, which are substantial for State ICT architecture performance, has been improved;
* when developing IS and e-services, activities have been planned in order to provide high quality of IS data undergoing development.

5. electronic communication:
* by advisedly choosing corresponding ICT solutions it is achieved in practice that collaboration among members of public administration process both within institution and across institutions happens only electronically;
* in cases when self-service solutions (e-services) have been developed, their usage is purposefully provided as a priority service channel (i.a., Key Performance Indicators (KPI) have been assigned to them, their usage has been motivated, etc.).

d. e-governance quality:

1. usability of e-services is improved:
* when developing e-services, a special attention is drawn to usability requirements;
* usability testing has been provided in order to provide development of convenient and user-friendly e-services;

2. availability of e-services has been improved – end applications are compatible with mobile devices and are developed in accordance to *web* availability standards.

3. information security:
* information security requirements are established in the basics of ICT solutions; they have been observed, improved and tested throughout the entire lifecycle of an ICT solution.
* information security training is an integral part of e-skills training.

4. quality control:
* quality dimensions, metrics and acceptance criteria which are significant for an ICT solution have been defined within project framework;
* responsibility for the system quality assurance of the parties involved in ICT project realisation has been clearly defined and implemented, including any kind of testing;
* effective IS quality control measures have been implemented by administratively and technically managing functional and non-functional system quality criteria, including performance, security, etc.

4. Results of information society policy and their performance indicators

The policy results to be achieved within the framework of the guidelines and their performance indicators are defined in Table 2.

Table 2

The policy results to be achieved and their performance indicators

The goal defined by the policy	To establish a knowledge-based economy and improve the general quality of life by ensuring a possibility for everyone to use the opportunities provided by ICT and making a contribution to the increase of public administration efficiency, State competitiveness, economic growth and the creation of work places.				
Policy result	**Performance indicator**	**2014**	**2017**	**2020**	**Action direction to reach the goal**
Operation activity of public administration efficiency increases	State administration efficiency assessment (*GRICS* indicator[19])	75%	80%	85%	5.1. ICT education and e-skills 5.3. Modern and efficient public administration 5.4. E-services and digital content for society
	Assessment of Latvia in the reuse index[20] of public sector information	285	380	450	5.3. Modern and efficient public administration 5.4. E-services and digital content for society 5.5. Cross-border cooperation for the digital single market
Business environment improves	Assessment of Latvia in the study of the World Bank *Doing Business*	20	17	13	5.3. Modern and efficient public administration 5.4. E-services and digital content for society 5.5. Cross-border cooperation for the digital single market
E-commerce develops	Company turnover from selling on the	8%	12%	15%	5.1. ICT education and e-skills

[19] *Governance Research Indicator Country Snapshot*

[20] The index evaluates the situation of access to open data and re-use of public sector information by taking into account 7 aspects: Implementation of the Directive on Re-use of Public Sector Information (2003/98EC), re-use practice, formats, costs, exclusive agreements, re-use of the information of the local government level, events and activities in the field of re-use of information. The maximum number of points - 700

	Internet				5.5. Cross-border cooperation for the digital single market 5.7. Trust and safety
	Proportion of inhabitants who shop on the Internet	20%	27%	35%	5.1. ICT education and e-skills 5.5. Cross-border cooperation for the digital single market 5.7. Trust and safety
The level of e-skills of inhabitants increases	Development of the medium level ICT skills of inhabitants[21]	30%	36%	40%	5.1. ICT education and e-skills 5.7. Trust and safety
	Proportion of inhabitants who have never used the Internet	18%	12%	9%	5.1. ICT education and e-skills 5.7. Trust and safety
Internet access increases	Proportion of households having Internet access	70%	75%	80%	5.2. Widely available access to the Internet
Convenient access to the services in the electronic media is provided	Proportion of inhabitants who use the Internet for cooperation with state and local government institutions	46%	54%	60%	5.1. ICT education and e-skills 5.3. Modern and efficient public administration 5.4. E-services and digital content for society 5.5. Cross-border cooperation for the digital single market 5.7. Trust and safety
	Proportion of enterprises which use the Internet for cooperation with state and local government institutions	78%	84%	90%	5.1. ICT education and e-skills 5.3. Modern and efficient public administration 5.4. E-services and

[21] *Individuals who have carried out 3 or 4 internet related activities,* Eurostat information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

					digital content for society 5.5. Cross-border cooperation for the digital single market 5.7. Trust and safety
	Proportion of inhabitants who have made an appointment with a doctor on the home page of a medical treatment institution or e-health portal (of Internet users)[22]	3.5%	5%	10%	5.1. ICT education and e-skills 5.3. Modern and efficient public administration 5.4. E-services and digital content for society 5.7. Trust and safety
Investment in research and innovation increases	Increase in investments in research and development (of GDP)	0.8%	1.2%	1.5%	5.6. ICT research and innovations
	Proportion of innovative enterprises[23] (of all enterprises)	22%	25%	30%	5.6. ICT research and innovations

In addition to the aforementioned policy results and performance indicators the effect caused by innovations is an important aspect in information society policy. The idea about the effect caused on innovations in the business activity and conclusions on the achievement of the indicator may be made by reviewing interconnections in several performance indicators, such as the assessment of Latvia in the re-use index of the public sector information, company turnover from selling on the Internet and the proportion of enterprises which use the Internet for cooperation with State and local government institutions.

[22] Survey of the Central Statistical Bureau on the use of ICT between inhabitants

[23] An innovative enterprise is an enterprise which has implemented at least one innovation in the reporting period: technological (of products and processes), marketing or organisational innovation information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

5. Action Directions to Reach the Goal and Solve the Existing Problems

Taking into account the analysis of the current situation in information society area as well as Information Society Development Guidelines 2006-2013 and the evaluation of the development plans' end impact built on basis of these guidelines, as well as the priorities in information society area[24] proposed in the EU development planning documents, the working group[25] has proposed **7 action directions** for policy planning period 2014-2020:
* ICT education and e-skills;
* widely available access to the internet;
* advanced and effective public administration;
* e-services and digital content for public;
* cross-border cooperation for Digital Single Market;
* ICT research and innovation;
* trust and security.

5.1 Action Direction "ICT Education and E-Skills"

In Latvia just as elsewhere across the Europe, e-skills have become an essential part of life and inability to access or use ICT is a significant obstacle for social integration and personal development. Insufficient level of e-skills among entrepreneurs and inhabitants works as an obstacle for economic growth, competitiveness and employment in Latvia and in the EU in general. According to an EU study[26], it is expected that in 2015 90% of all jobs in any sector will require technical skills, i.a. e-skills. At the same time, only 27% of EU inhabitants have high level ICT skills and 25% average level skills (in Latvia 31% and 30%[27] correspondingly). Only 53% from inhabitants working in Europe consider their ICT skills as sufficient for labour market needs[28]. Activities in e-skills area have to be directed to the areas that would stimulate both small and medium enterprises and inhabitant motivation for e-skills acquisition in order to ensure State economic growth, inhabitant competitiveness and advantages in labour market; thus, improving overall quality of life.

Further actions are planned in the following fields:
* public awareness and readiness to use e-Opportunities;
* development of inhabitant and entrepreneur e-skills;
* increase of public administration ICT competences;
* preparation of ICT practitioners and professionals according to requirements of labour market;
* increasing the proportion of algorithmic thinking and information literacy in educational programmes.

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[24] *The Digital Agenda for Europe* covers the following priorities: *Improvement of digital skills, abilities and inclusiveness, High-speed and extremely high-speed access to the Internet, Strong digital single market, Interoperability and standards, EU public benefits from ICT, Research and innovations, Trust and security*

[25] Members from ministries, State Chancellery, ICT domain associations, UNESCO Latvian National Commission, Latvian Chamber of Commerce and Industry, Employers' Confederation of Latvia and Latvian Association of Local and Regional Governments have been participating in the working group

[26] IDC White Paper Post Crisis: e-skills are needed to drive Europe's innovation society, 2009. http://ec.europa.eu/enterprise/sectors/ict/files/idc_wp_november_2009_en.pdf

[27] *Eurosta*t database

[28] Digital Agenda Scoreboard 2012 https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/KKAH12001ENN-PDFWEB_1.pdf

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5.1.1 Public Awareness and Readiness to Use E-Opportunities

By evaluating reasons which determine Latvian inhabitants' e-skills indicators, it is ascertained that they are affected by lack of understanding and motivation regarding necessity of acquiring e-skills, individual's emotional barriers to use ICT tools independently, as well as irregular and fragmentary State support to enhance e-skills acquirement.

Communication with the State and institutions is possible both in person and electronically. Communication in person historically is considered to be a convenient communication channel taking into account inhabitants' habit to socialise. Inhabitants cannot overcome stereotypes, they fear anything new and unknown, fear to dare to take an advantage of the offered e-Opportunities. In most cases inhabitants as well as entrepreneurs do not exploit electronic options as they are not aware of the advantage provided by digital skills. A survey carried out in 2012[29] showed that 39% of respondents admit that information regarding e-services of State and local government services is not available in sufficient amount. Large part of public has difficulties to get used to innovations and new technologies, besides considering information in mass media, a notion has occurred that the electronic environment is not secure and reliable.

Due to the above mentioned public stereotypes and insufficient acquirement of e-skills, a situation in Latvia has developed where the State has produced and offers e-services significant for public, however, invested actions and means to develop e-services have not been sufficient to facilitate achievement of the average level of e-services usage in the EU, as well as more rapid development of e-commerce and remote work options.

As an additional essential aspect of the exploitation of electronic environment, is inhabitant knowledge about Internet security. Since 2009 Latvian Internet association *Net-Safe Latvia* within Safer Internet centre action framework, in cooperation with partners and receiving 75% co-funding from EU Safer Internet programme carries out educational work in the field of Internet content safety, ensures operation of Hotlines (to report on illegal and harmful Internet content), as well as cooperates in the operation of SIPCR Children and teenagers hotline 116 111 providing possibilities to children and teenagers to report on violation in the Internet and to receive a support of a psychologist. The deadline to receive co-funding for the mentioned activities is October 31 of 2014. In order to ensure continuation of the activities after the deadline, appropriate funding has to be anticipated. Additionally, it should be noted that the implementation of the mentioned activities is performed centralised by merging functions of several institutions. Commenced work has to be continued and considering that the collaboration of the several involved institutions will be necessary for the coordinated implementation of activities, a united model of further collaboration of institutions has to be developed, and distribution of institution competences distribution has to be set. The said issue has to be solved within the framework of the State ICT security strategy development.

Required Actions

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[29] Evaluation of public opinion regarding utilisation of e-services in Latvia. December of 2012. http://www.varam.gov.lv/lat/publ/petijumi/pet_Eparv/?doc=14321
information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

Latvia has to continue inhabitant and entrepreneur information and educational activities regarding the necessity of e-skills acquisition and benefits of their usage, including education on security issues in electronic environment and product/services sales and procurement in the internet.

Information and educational activities in the field of Internet content and security regarding possible risks and threats in the Internet (e.g., informative aids and educational materials, social marketing campaigns)[30], are required for public, in particular for children and adolescents.

It is crucial to continue organising inhabitant and entrepreneur information and educational campaigns according to innovation and development trends through the collaboration of State institutions, local governments and their subordinated institutions as well as NGOs in order to make Latvian inhabitants well-informed regarding the offered e-Opportunities and prepare them to use their knowledge practically.

E-skills week has been successfully organised in Latvia already for four years. It is a public information campaign at national level regarding importance and e-Opportunities of ICT skills. It is important to continue and develop this annual event involving education sector, public sector, companies from ICT domain and NGOs.

It is important to foresee funding in development project budgets to inform end-users regarding the availability, security and re-use options of this system and service, as well as to provide user training. That will positively impact e-services usefulness and will improve investment return from the implementation of new IS.

In order to properly ensure public awareness regarding latest ICT developments, as well as to contribute to Latvian economic growth, it is essential to support demonstration of Latvian ICT industry achievements and facilitate collaboration in Latvian level and among Latvian ICT industry and foreign companies and research institutions; therefore, simultaneously enhancing the development of new and competitive ICT technologies, products and services in order to capture new markets and increase export.

5.1.2 Development of Inhabitant and Entrepreneur E-Skills

Digital skills are part of the eight major individual skills that are essential in the knowledge-based society. Also, The Digital Agenda for Europe stresses that it is important to train European inhabitants regarding ICT and digital media usage. Memorandum of cooperation on "E-skills partnership" formation in Latvia has been signed in 2013. In the memorandum members of State sector, ICT industry and NGOs came to an agreement to cooperate in order to enhance development of e-skills in Latvia to ensure stable economic growth, personal development of population and active civil society.

Therefore, one of the essential aims of the e-skills development is contribution to digital e-skills of population, entrepreneurs and other target groups, which could ease everyday life, employment and social life. In 2000 requirements for ICT acquisition were defined depending on personal

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[30] Foreseen activities have to be implemented in the close relation with the action direction "ICT Education and e-Skills"
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status in labour market and society. In the defined basic skill level, a person can use ICT to satisfy their interests and needs (usage of the Internet, Internet bank, public system interface, mobile applications, social networks, etc.). This level is provided by elementary school education for all 9th class graduates within the framework of the individual subject "Informatics". The educational content to be mastered at school complies with requirements of European Computer Driving Licence (ECDL). Therefore, all graduates are sufficiently prepared for ICT usage. State's task is to continue providing ICT skills learning for all school students similarly as it is with literacy.

Due to the computer equipment availability and free of charge access to the Internet, which is created within the framework of the project "Trešais tēva dēls", public libraries in Latvia are one of the focal points for ICT skills acquisition and e-services usage, where people with low e-skills may master basic ICT skills and people with low income may use State, local government and private sector e-services, in case of necessity, receiving also consultations on the usage of these services from library specialists. The average overall benefits resulted by Latvian public libraries in a one year period is approximately 23.8 million LVL, while yearly expenses of the library system (mainly the State and local government funding) is slightly above 17 million LVL, due to that, an overall public benefit from public libraries is approximately 6.5 million LVL yearly.[31] As well as within the ERAF activities "Development of Public Internet Access Points", 517 public access points have been created; therefore, increasing Internet access opportunities for as wide public groups as possible and facilitating free of charge access to the services and information offered by public administration and commerce sector.

Practical experience shows that society, in particular its youngest part knows how to use ICT in order to perform its work duties. For example, various types of reports have been submitted electronically, a large part of society uses Internet bank services and usage of social networks is a common phenomenon in the society.

It is crucial to develop digital skills that are not taught in comprehensive or vocational curriculum or in lifelong educational programmes in form of courses. The said e-skills characterise skills of inhabitants, entrepreneurs, seniors, unemployed and other inhabitant group to use ICT tools and resources for communication with State and local government institutions, ability to orientate themselves in electronic information sources, home, web pages, utilise offered resources thereby broaden their horizons and expanding possibilities to ease their and their peers' lives.

Especially, digital health literacy should be emphasised, which in 21st century is particularly important due to its high availability and high quality for provision of health care, as well as due to patient involvement in their health maintenance. ICT also has significant importance to improve quality of life of older people in order to help them live actively and independently for longer, as well as to lessen the age related restrictions of quality of life. The older part of the society has a possibility to master ICT skills in courses that are available in wide offer and cost range.

Required Actions

[31] Study "Economic Value and Impact of Public Libraries in Latvia", 2012; analysed library services: organisation of computer training courses, consultations on computer usage, book issue, usage of computers and the Internet, utilisation of reading rooms, services to the library users with special needs, printing, scanning, copying, organisation of public events, exhibitions, and information services
information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

It is necessary to develop informative modular ICT educational programmes for adults with clearly defined training results for education of various inhabitant target groups. Standardisation of modules according to ECDL could relieve training planning and result interpretation. This approach is particularly important for the training of unemployed as it will allow measuring the achieved level of ICT skills and acknowledging the achieved level of skills for a potential employer.

It is important to ensure support also for acquisition opportunities of informal education in the field of ICT for all society groups, in particular for children and young adults, seniors, poor, unemployed and individual entrepreneurs using the network of public libraries. In order to ensure availability of services, public library material and technical base and number and qualification of library employees should be strengthened.

Self-employed, micro-enterprise and SMEs skills and competences in the field of ICT should be facilitated, i.a., paying attention to education related to ICT usage of opportunities in the enterprise operational process improvement or, for example, for opportunities to perform entrepreneurship with the mediation of communication means, including Internet.

It is important to provide support to ICT training for seniors, foreseeing training not only for e-Inclusiveness but also for the improvement of the employment perspectives and reduction on unemployment risk for preretirement population group (at least in age group 50+).

Also, it is essential to provide development of digital skills of inhabitants, medical personnel, pharmacists, pharmacist assistants and other persons involved in provision of health care services, both in utilisation of solutions provided by e-health and ICT and in utilisation of new digital medical technology used in health care.

Within the framework of subject “Informatics” of elementary school educational programme, it is necessary to foresee education of young people related to questions of ICT security, in particular in the field of Internet content security – possible risks and threats in the Internet (hatred, racism, child pornography and paedophilia, emotional humiliation in the Internet, identity theft and data misuse, the dos and don’ts of using the Internet, web etiquette etc.) as well as education regarding the usage of copyrights and legal software.

5.1.3 Increase of Public administration ICT Competences

Depending on a profession, persons are using ICT for their daily work tasks (state administration employees, accountants, teachers, etc.). Institutions of professional education or institutions of higher education according to the profession requirements provide the required knowledge in the field of ICT. State function is to formulate standards and requirements for ICT knowledge and skills of appropriate professions. In order for public administration to perform changes in operational process using ICT means, it is necessary to provide adequate number of ICT specialists in public administration, competitive salary and increase competences for employees of public sector, focusing on both policy planners and policy implementers.

Process-oriented thinking, operational process analysis skills, ability to find shortcomings in processes and employ technologies must be stimulated in public administration in order to

improve processes, hence reducing administrative burden and facilitating productivity of the performance. Employees of public administration should be smart and knowing ICT solution subscribers and users, who know how to convert needs into clearly defined functional demands, who have understanding of the required service standards, applicability, security, performance requirements, which will have to be ensured by ICT solutions and must manage to use these solutions for the performance of their direct obligations. Also, a comprehension regarding ICT project management methodologies and ICT solution maintenance should be improved. The development of the mentioned competences is a precondition for the successful implementation of high quality and user-friendly e-governance solutions. Employees of public administration have to be fully aware of opportunities provided by ICT in order to provide support to public to receive e-services as well as to ensure that input invested in the development of ICT and e-services infrastructure achieves its goal.

Required Actions

Public administration management and training of ICT employees should be performed regularly as well as to facilitate unified understanding of improvement of process efficiency and opportunities and applicability of new technologies for improvement of administration process. In order to ensure improvement of public administration ICT competences within the framework of the activities implemented by State Chancellery in the field of capacity strengthening and competence development of the public administration human resources, it is necessary to include appropriate educational programmes in educational modules for the improvement of ICT competences as well as process analysis competences for the employees in public administration and provide corresponding training in collaboration with the Latvian School of Public administration and other providers of training services.

It is essential to provide the necessary ICT skills training for public administration employees, particularly for the ICT professionals regarding effective ICT governance, architecture, security and maintenance issues, for ICT project managers regarding e-governance project management and ordering issues, as well as to plan training for state and local authorities' chairpersons regarding ICT possibilities of public administration for modern service organisation provision.

Given the rapid development of digital learning resources in the field of education and the need for more personalised learning process, teachers' ICT skills are crucial for provision of high quality education process. A standardised assessment of teachers' ICT skills is associated with the unified quality level classification system, in which a cyclic ICT skills certification would ensure objective monitoring of the situation and planning of professional development on municipality and national level.

5.1.4 Preparation of ICT Practitioners and Professionals According to Requirements of Labour Market

In recent years, in Latvia, as in Europe, lack of ICT professionals is increasing – in Europe, one in four ICT jobs is vacant, and it is expected that by 2015 there will be shortage of approximately 700 000 ICT professionals in Europe. In order to ensure stable economic growth, it is necessary to expand and improve skills of ICT practitioners and professionals, i.e., digital literacy, with particular focus on training of qualified ICT specialists for the labour market, development of vocational ICT programmes and adolescent ICT education.

Education sector analysis shows that the involvement in all levels of education is high, but a disproportion remains in higher education among students of social sciences, engineering and natural sciences. This can lead to discrepancies between skills of new workforce and needs of labour market. The quality of higher education quality is insufficient in individual study programmes and fields of study.

It should be noted that the number of newly trained specialists is determined by the sum of bachelors and engineers, because master's and doctoral studies only continues the previously acquired education, and education level of technicians (college) allows performing rather simple ICT activities. In 2012, the number of newly trained specialists is only 688 professionals (653 professionals with a bachelor's degree and 35 engineers) that do not satisfy economic demand.

Table 3 shows that the universities in Latvia have reached their maximum capacity regarding the number of prepared professionals, which has been practically unchanged from 2004. This is not due to the lack of state-funded study places, but due to insufficient number of school graduates who are interested to acquire ICT profession and inadequacy of school graduate background level for acquisition of an ICT profession.

Table 3

Training of ICT Professionals in Latvia

Year/Acquired Degree	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**	**2012**
Technicians	22	38	68	150	178	220	247
Bachelors	511	501	578	690	585	612	653
Engineers	100	156	148	103	38	51	35
Masters	98	183	373	311	311	287	295
Doctorates	0	2	6	10	11	4	21
In total	**731**	**880**	**1173**	**1264**	**1123**	**1174**	**1251**

Lack of ICT professionals is a delaying factor for the growth of the ICT sector, improvement of international competitiveness, improvement of export capacity, and attraction of foreign investors. Taking into account salary differences and lack of ICT professionals in the EU Member States compared to developed economies (Germany, Sweden, United Kingdom, etc.), it must be acknowledged that additional risks exists for local ICT companies regarding investments in training and certification of their employees. On the one hand, Latvian ICT companies risk losing their employee education investments if the trained employee moves to another EU Member State. On the other hand, by reducing these investments, there is a risk to lose competitiveness. It is important to continue the training of the employees of ICT companies in order to promote industry growth and competitiveness improvement. Supported training of

persons employed in ICT sector and co-financing of public sector allow reducing issues of the labour market and gaining a competitive business environment.

Required Actions

The education sector should improve building and systematic development of student information, career counselling and motivation activities of ICT career guidance: ICT career days, Informatics contests, summer camps, interest groups on social networks. Steps must be taken in order to promote the training of young people starting to work in their first job, providing acquisition of practical skills in the modern technologies.

Increase the number of students in the universities' ICT professional programmes and adequacy of the acquired education to the requirements of employers (including preparation of ICT security specialists) in order to reduce the burden on employers to train new employees. The development of new ICT-related occupational standards should be facilitated and special measures for the training of young people for potential employers should be envisaged (internship, summer schools, etc.).

Support programmes for training of employees for the improvement of competitiveness of ICT companies should be continued. Special support should be provided for the training related to the latest technologies, good practice and frameworks of basic activities, ICT infrastructure and project management processes.

The introduction of new forms of training, which is based on the training approach to carry out practical actions, should be emphasised in the education of ICT professionals. Encourage and facilitate the lecturer and students (group of up to five students) jointly developed projects, for which final results are introduced or made publicly available.

ICT companies have to create opportunities and offer placements in order to promote and provide opportunities for young ICT professionals to integrate into the labour market.

5.1.5 Promoting the Proportion of Algorithmic Thinking and Information Literacy in Educational Programmes

With the development of ICT, range of information available for public, is growing rapidly on daily basis, and in this situation public information literacy becomes particularly important – skills to find, assess, process, use, synthesise information, be competent in enormous amount of information resource and information processing tools. On the other hand, the higher information literacy level each member of the society has, the greater the contribution the individual is able to give to the country's economic development.

Information literacy in the information society cannot be over-emphasised – to acquire knowledge and effectively work in the information environment, an individual must be able to find sources of information and find there the necessary information, to evaluate the information resources and the reliability of the information found, quality and relevance of information needs, and use the information found in order to build new competences. Information literacy issues are important for public and individuals not only in the active period of study and work, but also in a lifelong education perspective.

The main aspects of information literacy are:
* usage skills – the ability to use print and electronic resources, including software;
* resource skills – the ability to understand the form, format, location and access methods of information resources;
* socio-structural skills – knowledge of how information is socially structured and designed (includes the understanding of the scientific publication process);
* research skills – the ability to understand and use appropriate information technology tools to conduct research;
* publication skills – the ability to create text or multimedia messages on the study results.

Therefore, it is essential in the development of the information society to promote the pre-school education, primary education, secondary education and higher education content, in the meantime integrating e-learning in the national education, including curriculum, assessment of learning outcomes, and teacher professional development. It is particularly important to emphasise the necessary changes in the subject "Informatics (Applied Informatics)" and expand the meaningful use of ICT resources in pre-school curriculum, as well as encourage the strengthening of algorithmic thinking and information literacy and raising teachers' own level of digital literacy, also for academics to work with e-learning platforms and e-course management. Educators need to build new professional development programmes in accordance with the requirements of the ICT industry both in the relevant business environment and online, providing continuous professional methodological support for the work in innovative learning environments.

Important activities have been performed in 2006-2013 development planning period in order to promote the spread of digital learning materials. National Centre for Education has completed two European Social Fund projects "Science and Mathematics"; significant results have been achieved in subjects of natural sciences, in which a significant amount of digital learning materials have been created for 7th-12th class students. Learning materials have been developed for interactive whiteboard "Natural Sciences 1st-6th Class". In 2013 it is foreseen to develop electronic interactive learning materials in mathematics for 1st-6th class.

Support activities in the subject "History of Latvia" in 2011 prepared for the introduction of two electronic learning materials, training film "History of Latvia: 20th Century" and "History of Latvia for 6th-9th Class: Images, Maps, recommendations". In 2013, e-materials "New World Geographic Atlas" have been delivered to all educational institutions. IS have been created, which allow centrally gather digital learning resources and make them accessible in the educational process. However, the overall availability of digital learning material is still insufficient (for example, in such subjects as Latvian language and literature, social studies, etc.), and there is a lack of teacher training and awareness level regarding the development and utilisation of these materials.

Taking into account the close connection between ICT and mathematical competencies, particularly the role and methodology of mathematics should be highly emphasised during curriculum development process for training of future professionals in fields of ICT and natural sciences.

Required Actions

To develop a targeted long-term public education strategy that will balance development goals of formal education, informal education, labour market and national economic priority directions. One of the main objectives is the preparation of the ICT professionals for the labour market. Content improvement of general secondary education and elementary education is planned in the framework of foreseen activities of the Development of Education guidelines for the period 2014-2020 (draft)[32].

An important role in the training of ICT professionals plays interests' education; therefore, it is necessary to implement activities that support the development of interests' education in the field of ICT.

It is necessary to continue modernise the curriculum and digital information literacy for the school students and teachers both to support lifelong education by strengthening the capacity of environmental cognition and personal self-realisation, and to strengthen employment and competitiveness.
To provide educational institutions with encyclopaedic, digital cultural heritage and research result electronic resources related to age groups and training directions.

It is necessary to integrate information literacy learning in general, vocational and higher education, through building appropriate learning materials and including in syllabus tasks for development of information literacy skills. It is important to increase the role of the school libraries – promote school libraries to become information literacy centres, including the creation of digital resources' reading rooms.

In order for information literacy acquisition to become a success, teachers' professional knowledge and skills in this area should be improved, and modern methodical aids have to be developed in collaboration with universities and industry professionals.

Particular attention should be given to teaching process quality and subject content of mathematics, informatics, and natural sciences in order to provide human resources for manufacturing and high-tech based economy, through improvements in curriculum of general education schools, including implementation of an adequate number of hours for subject "Mathematics" in accordance with the development policy priorities in the field of science and mathematics.

Responsible ministries together with the social partners, within the framework of educational strategic development within the period 2014 to 2020, shall take steps aimed at improvement of teachers' foreign languages and ICT skills, usage of innovative technologies in the learning process for teaching various subjects, including provision of training to teachers related to creation of digital learning materials.

It is necessary to expand usage of digital learning materials in the educational process, covering all subjects in primary and secondary education level. As a priority, activities that focus on the development of interactive and original digital learning content should be supported, creating them according to technical standards, which are supported by centralised learning materials and operations solutions developed in the education sector. Promote the usage of available materials

[32] http://izm.izm.gov.lv/aktualitates/jaunumi/9812.html
information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

and cognitive resources (Latvian language, Latvian history, etc.) in the development of interactive digital learning resources. While developing digital learning materials, the technical and legal availability should be provided also outside the school class. This includes both technical aspects (e.g., interactive whiteboards will not be available outside the class) and legal issues (learning resources developed with public funding should be freely available – for example, using a CC or OSI licences, in the meantime ensuring compensation to the owners for the usage of protected copyrights).

All college, bachelor and professional higher education ICT programmes should include internship in the ICT sector, for example, one semester in order to understand industry specifics sufficiently. At the same time the development of an ICT education must be balanced with the acquisition of social skills with a view to prepare comprehensively developed and competitive young people for the labour market.

5.2 Action direction "Widely Available Access to the Internet"

In 2010, the EU approved the strategy "Europe 2020", where one of the most important tasks is to improve Europeans' access to high-speed and extremely high-speed Internet. The implementation of this task is included in the Digital Agenda for Europe.

As a minimal standard of Internet access for the future needs Digital Agenda for Europe has recognised a broadband access at speeds of at least 30 Mbit/s. 100 Mbit/s is mentioned as optimum download speed. Thus, the goal of Digital Agenda for Europe for 2020 provides that:
* each EU inhabitant should be able to receive an Internet connection with download speed of more than 30 Mbit/s;
* at least 50% of EU households subscribe to Internet connections with download speed of more than 100 Mbit/s.

Thus, the key objective is to ensure equal access to e-services across Latvia for all inhabitants and businesses by encouraging the development of electronic communication network infrastructure in areas where due to economic reasons, electronic communication merchants are not interested in the deployment of electronic communication network infrastructure. For the implementation of key objective it is planned to attract EU structural funds and state aid, and its implementation affects a number of electronic communication network infrastructure components – the "last mile", transport networks and grids, as well as the mapping of the current electronic communications network infrastructure.

The development of next-generation broadband networks will provide both inhabitants and merchants and public administrations with fast and high-quality access to public information and will promote demand and development of e-services (e.g., e-governance, e-school, e-commerce, e-health, e-Business), as well as expand opportunities to perform remote work or business not only in e-commerce, but also in other service areas. The development of broadband electronic communications network will expand the variety of the opportunities provided by social media and electronic media.

Further actions will be planned in the following areas:
* transport networks;
* last mile;

* grids;
* the mapping of the current electronic communications network infrastructure.

Additionally, the detailed description of the actions required in these areas is included in Next-Generation Broadband Electronic Communications Network Development Concept for 2013-2020[33].

5.2.1 Transport Networks

Transport network is the part of the electronic communication network with a high throughput, which is designed to provide data transmission between the grid and the "last mile" (subscriber line). One of the problems identified in the research[34] conducted by the Ministry of Transport is the lack of high-quality high-speed transport network.

Electronic communications networks in Latvia have not been built in sufficient amount, as well as existing networks often are not capable to provide the necessary amount of data throughput. Without the developed transport network infrastructure, it will be impossible to transfer the information volume generated by the next-generation networks. Also, an opposite connection exists – electronic communications merchants will not be interested in the development of the next-generation access network subscriber lines, if there will not be an appropriate transport network infrastructure.[35]

In order to address the problems identified in relation to electronic communications transport network, the Ministry of Transport and the EC in 2011 agreed on Optical Network National Assistance Programme (NAP) (November 9, 2011 EC Decision No. C(2011)7699; the EC State aid case number – SA.33324(2011/N)), which provides building of fibre optic electronic communications network and creation of optical access points in municipalities that do not have optical network connection and where none of the merchants intend to create such in immediate future. In order to fully realise the NAP, the total amount of state aid that is required for the development of the optical transport network within the Optical network NAP is 71.5 million LVL.

JSC "Latvian State Radio and Television Centre" has been determined as the developer of Optical Network NAP, and is required to provide open access to established infrastructure and in order to avoid possible competition distortions, restrictions in accordance with the NAP and the EC decision have been defined.

Implementation of Optical Network NAP is envisaged in two stages. Phase 1 of Optical Network NAP has been launched and Cabinet Regulation No. 79 "Regulation on operational programme "Infrastructure and Services" adopted on 24 January 2012, amendment point's 3.2.2.3 activity "Provision of Equal Availability of Electronic Communications Services Throughout the Country

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[33] Cabinet Order No. 589 "Next-Generation Broadband Electronic Communications Network Development Concept for 2013-2020" adopted 7 December 2013

[34] Consultation material on the infrastructure development project of electronic communication optical transport network ("middle mile") http://www.sam.gov.lv/satmin/content/?cat=451&art_id=2384

[35] Next-Generation Broadband Electronic Communications Network Development Concept for 2013-2020 (Cabinet Order No. 589 "Next-Generation Broadband Electronic Communications Network Development Concept for 2013-2020" adopted 7 December 2013)
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(Development of Broadband Network)" has been approved for its regulation. Within the framework of phase 1 of the project, approximately 1900 km of optical cable routes will be constructed and 165 optical network access points will be installed.

Required Actions

For the development of transport network, it is necessary to initiate the implementation of Optical Network NAP project's 2nd phase. It is expected to be launched, depending on the availability of funding provision, and completed until 2018 at the latest. In order to fully realise 2nd phase of the project, the total cost of 65 million LVL is required, of which the amount of state aid was intended to be 55.3 million LVL. The envisaged overall funding for the direction's "Availability of Services to Create Equal Job Opportunities and Living Conditions" action "Development of Next-Generation Network in Rural Areas", which is included in the National Development Plan 2014-2020 (NDP 2020) adopted by Latvian Parliament on 20 December 2012, is 40 million LVL, from which 50% will be funding of EU Structural funds and 50% private funding.

According to the application of the state aid programme No. SA.33324 (2011/N) "Next-Generation Networks in Rural Areas", harmonised with the EC in 2011, state aid intensity is:
1. Phase 1 of the project – up to 87.18%;
2. Phase 2 of the project – up to 85%.

On 19 June 2013, during the coalition partners' working group meeting on the issues of the EU Structural Funds and the Cohesion Fund, a decision was made on funding changes for the priorities, action directions and objectives set out in the NDP 2020, namely, the 11 million LVL funding of the EU Structural Funds in 2014-2020 planning period planned for the project "Development of Broadband Infrastructure – the Last Mile Connection Establishment" has been directed to the project "Development of Next-Generation Network in Rural Areas"; thereby, anticipating the 31million LVL support from EU Structural Funds for the project, creating ~85% of total funding.

The development of transport network should be linked to changes in the population structure, the territorial distribution of services, capabilities of regional mobility (not only physical) to reach services and jobs, etc.

5.2.2 Last Mile

Last Mile in terms of fixed lines is the mile from the last access node to the connection point of end-user's equipment, in terms of wireless solutions – from operator's base station to the end-user's device. An active infrastructure competition already exists in densely populated areas, while in rural areas, respecting the subscriber line construction costs and long payback period, the last mile is provided mainly through wireless broadband technology.

Wireless solutions are reasonable for low-density population areas. The most prospective radio frequency spectrum bands for the provision of broadband access services are considered to be the following radio frequency bands: 450-457.5 MHz, 460-467.5 MHz, 880-915 MHz, 925-960 MHz, 1710-1785 MHz, 1805-1880 MHz, 1900-1980 MHz, 2010-2025 MHz, 2110-2170 MHz, 2300-2370 MHz, 2500-2690 MHz, and 3410-3800 MHz. Considering the characteristics of the radio signal distribution, the usage of "lower" radio frequency spectrum bands for the provision

of broadband access in areas with low population density is regarded to be a rational approach. Radio frequency spectrum usage licence has to be received according to the procedure stated in the laws and regulations of Public Utilities Commission in order to develop electronic communications networks in the above mentioned radio frequency spectrum bands. In most of these radio frequency spectrum bands, electronic communications merchants have already launched the implementation of their next-generation broadband access systems.

Important radio frequency spectrum bands for the provision of the Internet access are those set in the National Radio Frequency Plan – 2400-2483.5 MHz, 5470-5725 MHz and for indoor use only – 5150-5350 MHz. Their use is not subject to the radio frequency spectrum usage licence of the Public Utilities Commission, as well as radio frequency allocation usage permit of JSC "Electronic Communications Office".

It is expected that the availability of new technologies, like LTE (Long Term Evolution - 4G wireless broadband electronic communications technology) will improve the situation, additionally, 800 MHz radio frequency spectrum band, which has been auctioned already in 2013 and which will enable operators to develop their broadband access services, will be available to electronic communications merchants in 2015. Improvements will also be provided by the infrastructure constructed during the transport network development project.

Required Actions

The project "Next-Generation Mobile Network Evolution in Less Densely Populated Areas of Latvia" was supported through Paragraph 2.1 of Cabinet Order No. 213 of 29 May 2013 "On the investment project application supported by the limited liability company "Latvijas Mobilais Telefons"" and it was assigned with the supported investment project status. Taking into account the task entrusted in Paragraph 3 of the Cabinet meeting minutes (No. 30, § 61) of 21 May 2013, the Ministry of Transport has evaluated the necessity and the amount of the proposed investments in the 2014-2020 planning period to provide availability of high-speed and extremely high-speed data networks to develop broadband infrastructure across Latvia – for the establishment of the "last mile" connection, and the planned funding of EU Structural Funds has been directed to other investments managed by the Ministry of Transport.

After the implementation of Optical Network NAP Phase 1 and 2, during which electronic transport network ("middle mile") will be built in accordance with the Next-Generation Broadband Electronic Communications Network Development Concept for 2013-2020[36], it is necessary to conduct a research related to the availability of subscriber lines ("last mile") with data transfer rate of at least 30 Mbit/s. In case of insufficient investments for the development of last mile, State aid will be provided within the framework of NDP 2020 action "Development of Next-Generation Network in Rural Areas", as well as, if required, it could be necessary to attract capital of the national budget for the development of last mile (see section 6 "Further Action Plan").

5.2.3 Grids

[36] Cabinet Order No. 589 "On Next-Generation Broadband Electronic Communications Network Development Concept for 2013-2020" adopted 7 December 2013
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Electronic communications grids in the territory of the Republic of Latvia cover country's largest cities, as well as provide international connections to neighbouring countries.

The volume of data transfer in Latvia is increasing not only due to needs and actions of the local users, but also due to significant amount of international data transit realised by the world's population via content search and dispatching.

According to the abovementioned projected increase of data transfer in the world in 2015, grids in Latvia would be required to provide approximately four times larger amount of data throughput. Thus, it is necessary to improve electronic communication grid with sufficient data flow throughput according to the future requirements in order to create an infrastructure platform of digital services that enables coordinated use of e-services.

Required Actions

The development of grids is performed by electronic communication merchants on commercial basis, and state aid measures regarding electronic communication grids are necessary (supported) only if it is ascertained that the grid development based on commercial basis does not provide grid with an adequate capacity (throughput, speed) and development of services. Before making a decision on adaptation of state aid measures, an estimation whether it is necessary to improve current electronic communication grids or parts thereof according to the future needs until 2018 in order to ensure a sufficient data flow throughput and to support infrastructure platforms of digital services, allowing the coordinated use of e-services. If necessary, the Ministry of Transport will develop state aid programme and, in case of approval, the grid development project will be implemented, taking into account the recommendations of the EU and the geographic areas lacking effective competition and where the next-generation electronic communications grids would not be realised in the nearest future without public support (EU Structural Funds or state).

With regard to the facilitation related to the construction of the electronic communications network, it is planned to prepare an information report on measures to reduce administrative burden regarding the development of broadband electronic communications network, evaluating the possibilities in the laws and regulations define the rights for the merchants to use state and municipal road partition lanes free of charge for the construction of next-generation network, determine reasonable un predictable conditions to establish network servitude, exemption from local government taxes in connection with building permissions, etc.

5.2.4 Mapping of the Current Electronic Communications Network Infrastructure

As one of the factors delaying deployment of optical network are high construction costs of network infrastructure. Such costs can be reduced by collaboration of electronic communication merchants during construction process or by using already existing infrastructure. According to the EC recommendation[37] on regulated access to Next-Generation Access (NGA) networks, an Optical network infrastructure database should be created that contains information on geographical locations of all engineering technical infrastructure, available capacity and other

[37] "EC recommendation (20 September 2010) on regulated access to Next-Generation Access (NGA) networks (2010/572/EU)" http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:251:0035:0048:LV:PDF information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

physical characteristics that could be used for distribution of fibre-optic networks in a specific market or segment of the market.

Required Actions

To solve the problem, it is necessary to establish Optical network infrastructure's database, which contains information on geographical locations of all engineering technical infrastructure, available capacity and other physical characteristics that could be used for distribution of fibre-optic networks in a specific market or segment of the market. The information owned by the State and local governments would be used in the development of database and data operating principles would be developed in close collaboration with electronic communication merchants. Such database should be accessible to all electronic communication operators in Latvia, as well as state administration institutions. When planning installation of a new electronic communication networks, electronic communication merchants will receive information on the already existing networks and equipment that could be used for electronic services. Making an agreement with the owners of existing networks and equipment regarding joint use of infrastructure would allow reduction of implementation costs and deadlines of new services; thereby, cutting the costs for merchants and tariffs for end-users.

5.3 Action Direction "Advanced and Effective Public administration"

Public expects from public administration to serve the public interest, to be rationally and efficiently organised, and its services to be available as convenient as possible to every individual, entrepreneur and NGO.

Public involvement in public administration becomes a necessity in order to offer the services of such content and quality that meet public expectations to produce and make high quality decisions, which correspond to the public interests to use public resources for the monitoring of decision enforcement and implementation, and not less importantly – to prevent the public dissociating from the governance processes.

An efficient public administration should focus on cooperation and should function as a single integrated mechanism, where each individual institution performs functions and tasks under its sphere of responsibility in order to achieve country's common objectives. Also, for the efficiency of administration, the potential and opportunities of private sector should be assessed and advantage taken without attempting to provide features that are provided by private sector services and technologies in the circumstances of a sufficient competition. It is worth to highlight separately and make good use of such public administration and private sector partnership forms in which public administration interests coincide with the interests of the private sector, and are mutually complementing and providing synergy.

In order for public administration to reach its goal, it is necessary to ensure that the public is well aware of the public administration services, are able to use them for the improvement of their quality of life, and for the enhancement of the overall competitiveness and productivity of the individual and society.

Public administration must be able to change and adapt to the needs of society and its behavioural patterns. For this purpose, innovation in public administration should be supported and stimulated

by all means. It is necessary that the public administration modernisation is an ongoing, cyclical process, which does not stop at the achieved, but is ready at any time to offer new and better content and performance to those aspects which further will be considered by society as norm.

Thus, a modern and efficient public administration is not a fixed condition, but the process within which the process modernisation and transformation do not possess a single or campaign-type character, but the already digitalised public administration processes are evolved and updated according to the maturity level of the society, its current behaviour and demand trends, and taking advantage of the capabilities provided by the current ICT solutions and services.

The main benefits of this action direction will be reflected in the increased efficiency of public administration (decision-making speed, accuracy, relevance to the actual situation, the possibility to involve wide range of community groups in policy planning and assessment and reduction of administrative costs), as well as opportunities for people to get a clear, timely and consistent information on public administration services and their rights, creating opportunities for people to engage to a greater extent in decision-making and law-making processes by using modern technologies. Public and private sector service cooperation and synergies have a significant reduction potential of administrative burden.

According to the current situation and challenges, further actions for the modernisation of public administration have to be focused and planned in the following areas:
* process modernisation of public administration basic activities;
* public e-participation and e-democracy;
* single public administration data space;
* optimisation of ICT infrastructure.

5.3.1 Process Modernisation of Public administration Basic Activities

Information and its processing is an integral part of the public administration process. Timely and high quality information is necessary for both the preparation and the implementation of a decision. Also a decision making is related to the generation and distribution of new information and data. Public administration processes, which are characterised by a high standard information processing intensity, have high process progress efficiency, quality improvement and automation potential, implementation of which, through the appropriate ICT solution, could result in **optimisation** of both the public administration **resources** and **reduction** the administrative **burden** on inhabitants and businesses and improvement of the transparency and operational efficiency of public administration. Choosing appropriate ICT solutions thoughtfully, it is possible to achieve that the **cooperation** among actors of public administration processes both within the institution and between institutions **is carried out only electronically**.

5.3.1.1 Transformation and Optimisation of Basic Activities Process

Before the ICT entered the economy, the only widely accessible information storage and transfer technology in work organisation of public administration was a paper document. The specifics of this technology largely have determined the organisation principles and traditions of public administration. In the early stage of public administration digitalisation, public administration ICT solutions were usually made based on the processing of this document-oriented information. As a priority automation was performed only on document creation, storage and availability, and

secondarily trying to extract structured data, through the creation of electronic databases and registers, from the architecture of this document-oriented information. This situation in the public administration to some extent is characterised by colloquially developed term “paper sliding”.

The modern understanding of the ICT opportunities allows further development, by conceptually abandoning the document as an axis of public process and information organisation, which acts only as an information carrier. Instead, providing the information per se which is created, stored, processed and distributed digitally, allowing its conversion into/from analogue format only for the needs of customer service (digital by default).

Another area, whose implementation is delayed by historically developed organisational structural competences and functional division and culture of public administration, with considerable potential for development and optimisation is inter-institutional and cross-sectoral processes. The existing public administration level of maturity allows adequately look at, identify and assess such basic operational processes that historically have developed and localised within the limits of one institution or department, but at the heart of each of these processes lies a larger, perhaps even unconscious element of inter-institutional or even cross-sectoral operational process. By identifying and analysing such processes it is possible to discover until now unconscious opportunities of public administration process optimisation, which is offered by the overall vision of the purpose and structure of the objective; thus, revealing unnecessary or ineffective actions in each sub-process of this single operational process, which can be fully eliminated or optimised through ICT solutions.

Required Actions

Such document-oriented paradigm shift creates an opportunity **to transform public administration processes** innovatively and releasing them, using ICT solutions, from mechanical actions and restriction imposed by document-oriented information moving between actors of public administration processes. Instead, **focusing on decision-making and cooperation** between the participants involved in decision-making process. For example, to eliminate substantially request and reception of various notices, replacing them with a direct access to information systems granted to decision-makers. Within the process redesign it is essential to identify the full content of the corresponding process in order to make sure in the earliest possible stage of the analysis that the proposed modification covers the entire process (especially inter-institutional or cross-sectoral processes), rather than a separate, in one institution localised part of the process, which will not result in the greatest benefit from the planned optimisation.

During the evaluation of basic operational processes, drawing up proposals for improvement of processes, among other things, it is necessary to evaluate basis of laws and regulations, operating practice in institutions and the corresponding ICT provision and to offer suggestions for their improvement. Improvement proposal should contain the implementation plan of proposed solution set, anticipating implementation of upgraded ICT provision, in legally and organisationally arranged environment.

Similarly, when modifying processes, it is necessary, as far as possible, **to modernise** also **monitoring** and **control functions** – relatively expensive specific object and transaction controls replacing with the systemic controls in which, rationally selecting control target, it is possible to

perform purposeful and successful control and monitoring with the help of ICT both in terms of result and costs, at the same time reducing administrative burden, as well as costs.

Public administration process transformation examples are **new approach** for the provision of **the Rules of Procedure of the Cabinet** and for the provision of State administration human resources governance. Single platform for harmonisation of legislation and development planning documents would provide electronic **collaboration development environment** for Cabinet-level legislation, policy planning and information documents, in which the project document design is done, publishing for consultation and providing statements; thus, ensuring the availability of information on the progress of the project development from the concept to the acceptance of relevant decision (information transfer for official publication and exchange of documents with the Saeima). Such an environment would also provide opportunities for public involvement in the design phase of projects, including issues on the policy of better regulation and reduction of administrative burden, processing of submitted comments, development and coordination of documents (includes legislative development tools and electronic forms of initial impact assessment). Work of all parties involved in the development of document would be organised similarly to GoogleDocs, Microsoft Office 365, etc. in a shared mode working with a single document. It is also important to arrange state administration human resource management, providing increased efficiency of administrative process in human resources mobility, talent management, career development, job classification and work time tracking issues. As examples, in which it would be appropriate to consider the process optimisation, would be real estate registration, transfer of criminal procedure to e-environment, digitalisation of the administrative process, forecasting of labour market, rational employment of human resources potential in the direct public administration, registration of natural persons etc.

5.3.1.2 Digitalisation of Basic Operational Processes

More than 170 SIS (state information systems) have been created in Latvia, which provide electronic support for public administration basic operational processes; however, there are still such basic operational processes, in which e-Opportunities have been used insufficiently in order to optimise these processes. The relatively high number of government information systems indirectly implies on the fragmentation of IS technical support, which, in the beginning phase of e-governance development, particularly was enhanced by approach that for each individual problem or process from the point of view of design, it is easy to create a separate strictly functional, isolated technical solutions, rather uncritically evaluating maintenance and development opportunities of the designed solution, as well as without paying appropriate attention to the consolidation of operational processes even within the same institution.

Required Actions

Public administration basic operational processes, by their nature and purpose are unique and their progress is usually impossible to describe with a standardised set of information; therefore, particularly for the processes, which are characterised by a high standard information processing intensity, a **specialised ICT provision support must be built**, within which an information resource and its processing functionality related to the specific governance operational process is maintained electronically.

Processing of such information resources technologically organised via national information systems (expanding existing or creating new one) by **concentrating the maintenance of several related information resources as much as possible** in one national information system; thereby, implementing common operational platform principle. On the other hand, **centralised technology platforms must be used** as much as possible in order to provide functioning of the national information system.

In those processes of public administration, which are characterised by low intensity, creation of specialised ICT provision is not supported for digitalisation, but for their digitalisation ICT tools should be used, which are available for the digitalisation of processes.

With regard to the basic operational processes of public administration (or their phases), the result (sub-result) of which has so far been described in the form of unstructured or poorly structured data should be evaluated whether it is useful to increase the efficiency and quality of the appropriate process by selecting more suitable ICT solution with better data structure.

5.3.1.3 Digitalisation of Support Processes

In order for the modernisation of the public administration to achieve its goal, regardless of optimisation and digitalisation of its basic operational processes, the attention should be drawn also to the improvement of the effectiveness by implementing the optimization and digitalisation of their processes. The actual situation indicates that the digitalisation of support processes has not always been considered appropriately, for example, the circulation of documents, even within one institution, is often organised on paper. Given the existing ICT solution options, such situation does not have a rational basis and should be changed.

Until now the efficient and optimal organization and procedure of public administration support has not been reached even closely. For example, it is worth paying special attention to the organisation (to centralise it as much as possible) and standardisation of financial and management accounting processes (to prevent unjustified functional diversity of ICT solutions used in the public administration, and data accumulated in IS would be useful for processing, analysis and decision-making at the national level), also including solutions aimed at the development of human potential of the public administration (to attract and retain competent employees, to provide compensations, etc.). Similarly, technical support organisation of public administration websites is not optimal, as demonstrated by the research carried out in 2012 "Evaluation of the websites and state information system capabilities of the public administration of central authorities". The study analysed 115 websites of public authorities, and concluded that the improvements are required in order for public sector websites to provide inhabitant-directed services, would be user-friendly, simple in design and based on modern technology solutions. The study concluded that more than 50 different content management systems (of which 38 are individually designed systems) are used for the maintenance of public administration websites. Those systems have very different security level and the maintenance and accommodation practices of these websites differ as well. In general, it also creates high costs. The study proposes a gradual transition pattern, respecting the life cycle of website technologies and taking into account the technical complexity.

Required Actions

In order to automate the **support processes** of public administration, assuming that they are organised as standard processes, as well as basic operational processes, which are characterised by **low-intensity**, **standardised solutions should be used** both for the registration of process procedure and information support of decision-making process, as well as the maintenance of standardised information resources. For example, for maintenance and publishing of document and task management systems, CRM, accounting systems, personnel management system, centralised public administration data or statements for employees of local government institutions, centralised solution for the standardisation of "small and simple" information resources.

As one example, where it is possible to successfully use a standardised common use solution is a **development of centralised website management model** that could provide a unified platform for content management and security solution for all public administration websites. This means a single centralised technological and methodological support, unified structure for institutions' websites (which provides the user with a familiar environment and known principles of navigation), which in the same time enables the integration of specific modules for the needs of the institution. Every public administration institution reserve the right to manage its own website content, namely, content input is based on a decentralised basis.

5.3.1.4 Collaboration Between Processes of Public administration

To create fully electronic public administration, together with the optimisation and digitalisation of public administration processes optimization a mutual electronic integration of various operational processes should be provided to ensure that collaboration among members of public administration processes is managed only electronically both within single institution and across institutions.

Required Actions

Solutions and approach outlined in Section 5.3.3 "Unified public administration data space" are mainly used for the mutual integration of the optimised and digitalised public administration processes (especially those that are located in different IS). However, in the case of such specific processes (or phases) of public administration which result (sub-result) after process optimisation maintains nature of unstructured or poorly structured data nature and it should be shaped in the standardised electronic document or task form, including to ensure mutual information exchange between the document and task management systems or analogous processes, which are integrated into the national information systems of broader functionality, an environmental solution of centralised document management system integration should be used. Among other things, this solution would allow building rational architecture of the department document management system, avoiding the need to develop functionality that is not common for the standard document management systems available in the market. It also allows providing independent, isolated document management functionality of several institutions within the framework of a single system. In order to implement and fully and user-friendly utilise the offered technological solutions, attention should be drawn also to the establishment of appropriate regulatory framework.

5.3.2 Public e-Participation and e-Democracy

With the growth of the digitalisation level, ICT ensures more dynamic and efficient implementation of the connection and interaction with the community, in some cases, creating opportunities to introduce new public management processes or their forms for the community inclusion, which would not be practically feasible or would be disproportionately expensive in the analogue environment.

Required Actions

It is important to draw a special attention to the development and use of ICT options, which help to organise a dialogue with the public through the social network platforms and common forms of electronic communication; thus, making the communications with the public more modern and accessible. ICT solutions allow reaching the population better, since the mutual communication is performed through ICT platforms, which people use or more convenient and more rapidly could used on a daily basis. Namely, an institution of public administration "must move towards" its customers.

5.3.3 Single Public administration Data Space

In order to provide each public administration institution with the electronically available information, which is created and maintained scattered throughout the ecosystem of public administration institutions, given that its accumulation is based on a decentralised SIS architecture, required for the operation, it is necessary to provide, for the employees of public administration institutions, both automated data exchange between SIS and convenient tools for manual access to the information stored in SIS. It will actually allow implementing the principle that the public administration institutions are not gathering the information, stored in public administration, from a person or entrepreneur, but from the corresponding holder of the information resource – the institution.

Required Actions

For the provision of manual access of SIS data, it is useful to develop a centralised public administration data and statement jobs for the employees of state and local government institutions, whose initial functionality is expected to be introduced until 2014 for a support of operations of public tender commissions in order to provide commissions with the vendor information stored in the public information systems.

Automated data exchange between the SIS can be organised into two virtual interconnection ways – a two-way connection (using data communication interfaces, which are designed, individually aligning data exchange technologies of data transmitter and data receiver systems; thus, providing local interoperability between these systems) and "star-type" connection (using a data exchange interfaces that are is developed standardised, platform independent and hosted in the State Information Systems Integrator, providing interoperability between SIS at national level). The choice between these two approaches is determined by the required and predicted data exchange character – two-way connection would be more efficient for the provision of high volume, office-specific, unique data structures. On the other hand, providing data for one or few data objects of the same type, whose information is or potentially could be used for several institutions, it is more appropriate to choose "star-type" connection approach employing the State Information Systems Integrator. In addition, choosing between the "star-type" or "two-way"

connection approach, as well as other solution version described in this chapter, it is necessary to apply the principle of "open by default", whose "source" system makes the accumulated data available by the principle of open data. Application of the closed two-way connection should be particularly justified by the restrictions or special technical restrictions regarding data utilisation defined in legislation that prevents any possibility of the re-use of these data.

In order to further improve the security and speed of the data exchange, especially in those IS, which provide data through the State Information Systems Integrator, it is necessary to improve technological solutions of the corresponding IS cross-system integration interfaces, making them as a relevant IS functionality. Those basic data accumulated in IS, the usage of which in the single public administration data space is particularly intense, would be technologically replicable into State Information Systems Integrator in the technologically optimised high-performance high-speed data storage. As an example of such data is the information related to the identification of inhabitants and businesses.

So far the development and hosting of SIS interfaces in the State Information Systems Integrator have not been sufficiently active, therefore, SIS should be targeted to the connection to State Information Systems Integrator to ensure that all data, required for more than one user in the public administration or outside of it, are available via the State Information Systems Integrator. Given the expected increase of the utilisation of State Information Systems Integrator, it is necessary to improve also functionality and operation of State Information Systems Integrator, as well as from, technical, organisational and legal aspects.

Additionally, a principle should be introduced that the collaboration between National Information System and local governments' IS, as well as private sector IS, is organised through a centralised State Information Systems Integrator.

Regarding the SIS cooperation with EU institutions and other EU Member States institutions' IS, it is necessary to use a centralised State Information Systems Integrator as far as possible if it does not conflict with EU laws and the EU's centralised IS architecture.

It should be noted that the same approach applies to geospatial information, the exchange of which between SIS, a geospatial data uniter should be used.

In order to achieve a common understanding and actions of the involved parties to practically create and implement a single data space, it is necessary to develop public administration ICT architecture document which will cover the interoperability architecture of information systems and data exchange principles in this architecture.

5.3.4 Optimisation of ICT Infrastructure

National ICT infrastructure optimisation was initiated in 2010 with an informative report "On the Usage of Microsoft Infrastructure Software and Possibilities of Information and Technology Infrastructure Optimisation in Ministries and Their Subordinate Institutions"[38]. The report states

[38] Informative report "On the Usage of Microsoft Infrastructure Software and Possibilities of Information and Technology Infrastructure Optimisation in Ministries and Their Subordinate Institutions" http://polsis.mk.gov.lv/view.do?id=3354
information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

that departments must optimise their ICT resources, based on a standard data centre principle, which basically means merging of ICT resources into a single physical or logical data centre by providing the delivery of necessary services from this data centre to the department institutions' users. It was also determined that it is necessary to consolidate the ICT support services creating a single ICT support service in the department.

More significant ICT infrastructure centralisation began in 2013, confirming the concept of "Organisational Model of the National Information and Communication Technology Management", in which a partly centralised management model was chosen for single national ICT management and a process of future national ICT resource optimisation was outlined.

The leitmotiv of these initiatives is gradual transformation of national ICT infrastructure architecture, anticipating progressively higher centralisation and sharing level of its elements both at the department level and national level. For the purposeful implementation of such process, it is preferable to introduce activities that allow obtaining national ICT infrastructure architecture that is designed and maintained centrally as possible providing its usage in a sharing mode for the entire public administration supplying all the necessary high quality infrastructure services centrally and coordinated.

In order to ensure the rational use of resources, centralisation cannot be an end in itself, so before the commencement of centralisation, it is necessary to evaluate alternatives and in each case economically the most advantageous solution should be chosen.

Required Actions

One of the most promising technological options that will allow the development of such ICT infrastructure, is cloud computing, as well as hardware and network virtualisation.

By developing the existing ICT infrastructure optimisation activities, the public administration should obtain three to five logically joinable, interchangeable data centres that would be able to provide utilisation of maximally rational ICT resources. This logical combination of ICT resources would create a public administration cloud computing centre that will be able to deliver all typical cloud computing services to public administration institutions (platform as a service, software as a service, infrastructure as a service, workstation as a service). Cloud computing centre initially would be based on the existing ICT infrastructure basis of public administration, taking into account the expected life cycle and period of depreciation for the use of its elements. Planning the renewal or extension of elements of centre infrastructure in the further operation of such centre, the possibility, to use the private sector provided cloud computing services, will be evaluated, considering functional, security and other requirements necessary for public administration, as well as the overall economic benefit. This ICT business model requires good coordination and monitoring, as well as precise and clear service level agreement, which should be provided by providing optimal administration of public sector ICT infrastructure, since this is the only way to obtain maximum cost-effective ICT solution.

Thus it would be possible to supply for users both – standard infrastructure services – such as e-mail, data storage, database management systems, etc., – and centrally host SIS.

From point of view of ICT security, such infrastructure is considered to be critical infrastructure of information technology, and it must be appropriately protected, which in turn will improve the overall ICT security level in public administration. Also from the point of view of service delivery, service security will be increased because common use resources will allow using more operation-effective protection systems, as well as the interchangeability will ensure high level of operational continuity.

In order to provide ICT infrastructure optimisation, large-scale and complex IS development projects, it is necessary to attract highly skilled IT engineers for public administration jobs, correspondingly providing a competitive remuneration. Thus, the regulations regarding job classification systems and job classification procedures in public administration institutions must be appropriately changed.

5.4 Action Direction "E-Services and Digital Content for Public"

Digital content has an increasing and more decisive role in the national economic and social development. Digital content plays a leading role in research and education areas as well as in cultural and public administration services.

E-governance solutions enable institutions to offer inhabitants affordable and more convenient public, i.a., education and health services, cultural and educational content as well as to create the preconditions for supportive business environment, social processes, new opportunities of public participation and co-production, and for cooperation beyond borders.

The private sector creates commercial solutions with added value, while the public sector is one of the largest digital content creators and consumers. The state charge of making the data available in digital form and creating the conditions for use of digital content, will be laid for the development of the digital economy and economic growth in general.

Parallel to the electronic availability of the content owned by the state, a significant amount of work is related to the possibility to deal with the formalities required by the state remotely – as convenient and accessible to the public as possible and at the least possible cost to public administration.

Although a range of e-services are available and the country has a relatively high number of Internet users, the potential of the already created e-services is not always fully exploited – inhabitants and entrepreneurs often still prefer to perform the procedure in person, stating that administrative procedures can be complex, while e-services – fragmented. Analysis of the existing situation identifies the following problems of digitalisation of administrative services, which should be addressed particularly – incomplete identification of user needs and the involvement in the service requirements specification; uncritical approach to the evaluation of e-services or its implementation form (such as e-services to inhabitants or improved process and cooperation made between institutions); incomplete analysis of the service processes and the establishment of service processes beyond limits of an institution or department; limited ability to establish and maintain most appropriate applications for various audiences and objectives; lack of targeted channels strategy for the provision of services (priority service delivery channel, valuable set up of a created e-service); fragmentary practice to involve users in usability testing;

limited ability to adapt applications to technology changes (mobile device support, system interfaces, etc.).

The well-considered prioritisation of electronic channel and development of self-service solution will provide opportunity to institutions (and to the country as a whole) to reduce the resources related to service supply, allowing to switch them to improvement of basic functions. More effective and accessible governance is necessary; therefore, electronic communication and electronic content is not just an alternative to paper solutions – they must be replaced. Services created for public administration and businesses should be primary targeted only to the electronic way of reception, but for the services anticipated for population, it should become as priority channel of service provision.

Given that the digitalisation of cultural heritage and content available to the public should be seen in the broader context as the collaboration between public administration and inhabitants, as well as it has been determined as the UNESCO priority and its role has been emphasised in the NDP 2020, it has been proposed as a separate priority within this action direction. Due to similar reasons stimulation of Latvian language usage distribution has been separately highlighted, as well as the health sector, which results from the priorities and action directions of the NDP 2020 and other policy planning documents[39].

Further action will be planned in the following areas:
* opening of public administration data and transaction services to other users;
* shared platforms and service development for provision of public services;
* implementation of official e-mail addresses to inhabitants and entrepreneurs;
* digitalisation of public services;
* automated issue and acceptance of electronic invoices;
* digitisation and accessibility of cultural heritage;
* stimulation of Latvian language usage distribution in the digital environment;
* e-health solutions for efficient, safe and patient-oriented health care.

5.4.1 Opening of Public Administration Data and Transaction Services to Other Users

In order to ensure the valuable utilisation of data potential owned by the State and sustainability of solutions, principle of openness has been introduced as a key principle in the 2014-2020 development planning period – the availability of content and interfaces for both public administration users and other users.

In 2014-2020 development planning period, it is necessary to change the approach regarding the development of public administration solutions and services. Taking into account the experience of the private sector, where services of large companies serve as a platform for the creation of countless by-products (such as applications). Public administration investment in ICT solutions would be more sustainable and could develop additional potential, if they will create preconditions and possibilities that the final solutions could also be developed by third parties (services, data analytical solutions, etc.), exploiting data and standardised interfaces owned by the state.

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[39] Action Direction of NDP 2020: Human cooperation, culture and civil participation as the home base for Latvia, Action Direction of NDP 2020: Healthy and capable person, Public Health Guidelines 2011-2017 information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

Such approach will encourage creation of community demand-led solutions allowing third parties (including the private sector) make the adjustments to final solutions for the application scenarios of various specific user groups, as well as to ensure constant compliance with the technological development.

Availability of public data and availability of interfaces are preconditions to promote the implementation of potential of knowledge-based economy and sustainability of public ICT investments.

5.4.1.1 Opening of Public administration Data to Other Users

Data and information owned by public administration is resource, which includes unrealised economic and social potential. Data value increases, by disclosing them, where they can be used in the development of new commercial products, in scientific and research work, the analysis of public process, which in form of GDP growth and tax revenue will positively impact not only national economy, but also directly – budget returns, where part of them may be used for the maintenance of public administration action direction and financing of further development, creating an opportunity to change public data potential into economic potential more progressively.

Latvia does not have an adequate infrastructure to provide opening and publishing of comprehensive data existing in public sector, including in a machine-readable format. The legal framework provides demand-based data reception of public data, rather than proactive publication for the re-use. According to the European Public Sector Information Platform data, nearly no measures to promote the use of open data (information on available data sets, educational and solution-creation facilitating measures and initiatives) have been introduced in Latvia. With this in mind, the current rating of public sector information re-use is 285 points out of a maximum of 700.[40] Assessment has been comprised of implemented preconditions such directions as the takeover, re-use practices, formats, fees, exclusive arrangements, local (municipal) data re-use, re-use promotion measures regarding European Parliament and Council Directive 2003/98/EC on the re-use of public sector information (PSI Directive)[41].

To use the potential of public sector data, a series of measures should be introduced in order to make public administration data technically and legally available, to publish them proactively, as well as promoting their exploitation in the creation of new solutions. Taking into account measures envisaged in the future action plan, it is predicted that in 2017 the evaluation of public sector information for re-use will reach ~ 380 points, which will be achieved through the measures at least in the following areas:

1. **Implementation of European Parliament and Council Directive 2003/98/EC on the re-use of public sector information (PSI Directive)** – is considered to be finished and it is expected to take the updated directive;

[40] European PSI Scoreboard http://epsiplatform.eu/content/european-psi-scoreboard

[41] European PSI Scoreboard methodology: http://www.scribd.com/fullscreen/116277657?access_key=key-2681s8l1i37otu6dyvzd&allow_share=true&view_mode=scroll information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

2. **Re-use Practice:**
* a procedure/institution for challenging the refusal of the data issue will be provided (+15 points);
* an obligation to proactively publish data sets will be envisaged in legal acts (sectoral);
* national data set catalogue will be created (+20 points);

3. **Formats:**
* legal acts will support/require the publication of data in open formats (sectoral);
* national data catalogue will be available in a machine-readable form (+30 points);

4. **Fees** – data fee matter is under development and it is expected that it will be made pursuant to the conditions of European Parliament and Council Directive 2003/98/EC on the re-use of public sector information (PSI Directive).

5. **Exclusive arrangements** – maximum achievable rate for Latvia is 50%, which is its current rate. Latvia does not need to take corrective actions, which could provide extra points;

6. **Local (municipal) data re-use** – municipalities, which are publishing at least 10 sets of data (two municipalities – +40 points, four municipalities – +40 points, six municipalities – +20 points), are evaluated. Currently, the guidelines do not directly support publication of local government data sets, but the issue can be addressed in the context of broader local e-government infrastructure projects if the such will be implemented by municipalities;

7. **Events and activities** – it is expected to organise at least 4 national/ regional scale events, which would promote open data/information re-use measures (+30 points).

Required Actions

To support and encourage the transfer of public data for re-use, it is envisaged to support:
* development of technical solutions for data preparation and publication in a publicly accessible, transparent, harmonised and automatically processable form, in the same time ensuring data protection of natural persons;
* the development of required shared ICT infrastructure for the delivering data stored in state register for the re-use;
* the development of a single, centralised data catalogue – data structures and interfaces has to be described by the same form and should be available in the centralised catalogue;
* the development of centralised data distribution solution, anticipating also a possibility of a decentralised solution if it results from considerations of usefulness;
* support the actions necessary to ensure the functionality of the data sources for delivering the data contained in these sources for re-use and for changing into form valid for re-use, including support of anonymisation measures;
* the necessary policy development and regulatory framework implementation are provided for parallel solutions:
- takeover of European Parliament and Council Directive 2003/98/EC on the re-use of public sector information (PSI Directive), including implementation of fee and licensing regulatory conditions, for example, as requirements for licensing are set in the field of geospatial information;

- public administration institutions to change the funding model, in order to promote the re-use and common usage of the data owned by the state by minimizing the direct dependence from the provision of institution basic activities from such revenue that is made by transferring information for re-use as;
* measures that encourage the use of open data for the development of innovative products (applications, solution competitions, educational seminars and workshops).

Supported infrastructure development activities:
* shared solutions for open data processing, publication, previewing;
* establishment of open data applications (including collection and connection of data set).

During the development of guidelines a number of examples of data owned by public institutions were identified, whose availability in re-use format would have high added value in business and which was identified also by social partners:
* Added value taxpayer register, Taxpayer register, Tax debtor register, methodical guidelines, statements, anonymised enquiries on enforcement practices of taxes and other laws and regulations;
* basic information on subjects registered in the Register of Enterprises – the name, registration number, legal address. Registers – Commercial Register, Register of Enterprises, Register of Associations and Foundations;
* court schedules, anonymised court rulings;
* The Procurement Monitoring Bureau – public procurement announcement, the complaint database (available, but not in a machine-readable format);
* geospatial information basic data[42], including maps which are prepared and updated by the Latvian Geospatial Information Agency;
* Research and Publications database held by cross-sectoral coordination centre;
* information on public and municipality library, archive and museum collections from library electronic catalogues and joint State Archives Information System and the National Museum joint catalogue;
* digitised cultural heritage objects not protected by copyrights, which are digitised by public funds;
* information system of Latvian digital cultural map, data on all cultural institutions;
* anonymised data from the National Health Service;
* anonymised data from the National Social Insurance Agency database;
* Population Register data – data on natural persons – person status change – marriage, divorce, death and other facts.

Additionally, the interest about the publishing of information on the state budget revenue and expenditure in a clear and understandable form.

These data sets have been presented as examples, their "opening" volume and conditions are yet to be assessed, taking into account the factors that affect their acquisition, preparation and maintenance, including financing model of data sets holders. For example, basic information of Register of Enterprises is already available for re-use; however, the social partners appeal to ensure the re-use of basic data free of charge.

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[42] Section 17, Paragraph one of the Geospatial Information law
information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

During further implementation, the priority "openable" data sets will be identified, which will be included in the list of the thematic direction's priority projects. Additionally, criteria and qualification requirements will be developed, according to which any institution any institution that holds the data will be able to claim the co-financing of EU Structural funds for opening of these data.

Also, when implementing open data principle, it will be necessary to formulate conditions for public administration data usage. Generally they are determined by different types of licences. Although open data in general sense are defined as freely accessible and usable, they may be subject to licensing conditions, which, for example, determine reference conditions, etc. In order to create as uniform as possible and also internationally recognisable licensing practice, it is necessary to consider a possibility to use one of the public licensing policies recognised in European or international level (such as Creative Commons Licenses[43], European Union Public Licence[44]).

5.4.1.2 Opening of Public administration Transaction Services to Other Users

Administrative procedures are one of the most important forms of communication between inhabitants, entrepreneurs and the state. Public administration services should be available to inhabitants in such format and context as they need – it may not always be a state website. E-services potentially may be provided by the partner organisations as well (such as NGOs or a merchant). Most of e-services are implemented in a way where data and interface layers are not separated, which makes it impossible to use existing data or processes in order to create interfaces adapted to specific user needs. This approach does not provide compliance of e-services solutions to the latest technology options.

Required Actions

In order to ensure sustainability of service compliance to latest technology trends and to create the opportunity to provide them integrally with the help of private sector services or to facilitate their use, for example, in local governments **e-services may be developed to build application programming interfaces (APIs)**, by separating the e-services functional and graphical interface. Unlike open data – massive data discharge, these solutions will provide an opportunity to build personalised e-services and data transfer solutions also outside public administration. In order for this approach to be successfully implemented, it is necessary to plan **the centralised and shared solutions for the deployment of such interfaces**, define their **standards**, as well as to create **governance and quality assurance strategies** of the API-based solutions.

Such an approach would facilitate the switch to more cost-effective digital service channels (channel shift) which will create an ecosystem that supports public and private sector services symbiosis (integrated solving of user needs (for example, the opportunity to apply for credit service, in the same time allowing to obtain data on earnings, etc.), usage of single technical solutions, common user training and education, etc.). The solutions of the above mentioned objective should be created so that they could be used in other institution and local governments, private sector; therefore avoiding duplicate costs. Also, it is important to implement **measures**

[43] http://creativecommons.org/licenses/

[44] https://joinup.ec.europa.eu/software/page/eupl

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that encourage the creation of end-user services (applications, solution competitions, educational seminars and workshops).

5.4.2 Development of Shared Platforms and Services for the Provision of Public Services

The provision of advanced multi-channel services has been introduced increasingly wider, one-stop-source agency principle in the provision of services has been introduced, anticipating to hand over service provision function also to partner organisations, as well as ever-wider range of services should be available beyond borders, ensuring the identification of other EU inhabitants and verification of digitally signed documents. Latvia shall ensure the joint electronic point of contact operation, prescribed in Directive 2006/123/EC on services in the internal market ("Services Directive"), to serve for foreign EU Member State inhabitants, which should ensure collaboration with state and local governments' institutions, etc. It should be noted that without centralised issues, which are common for the entire governance, there are specific needs for certain industries that require industry-specific solutions.

In order to implement these and other systemic processes as rationally as possible – to ensure that the services provided by state and local government and their basic information is available in one place and in a uniform manner regardless of the belonging to a department, as well as to prevent creation of duplicated ICT solutions, to promote creation of rational multichannel customer service solutions and provide efficient client support to users of e-services, it is necessary to provide the creation and availability of adequate common use infrastructure, improvement of functionality and quality of the existing solutions, as well as the coordinated provision of e-services user (inhabitants, entrepreneurs and public administration staff) support through the exploitation of the existing research and experience. Centralised platforms have to become the main resource for the implementation of multi-channel services or the distribution of data beyond borders (such as in case of geospatial data).

The development of specific applications is not supported in individual applications (services), but the development of platforms should be facilitated for the creation of individual applications. It should be noted that common usage solutions are available for publishing of e-services, identification of inhabitants, processing of electronic payments, for preparation and distribution of standardised service descriptions, submission of service results to inhabitants and storage of these results, etc. The current experience in the collaboration related to public and private electronic platforms and solutions should be taken into account, by formulating of opportunities and conditions for future collaboration.

One of the central common use infrastructures is e-services common use infrastructure that is shared for the usage of e-services of more than 60 different institutions. Its exploitation intensity in the period from 2011 to 2013 has increased more than twice. The current technical and human resources are too limited in order to ensure high quality of future needs.

Required Actions

It is necessary to develop **standardised platforms** and solutions, on basis of which individual applications of various institutions and processes have been created (including e-services). For example, the development of the state and local government service website www.latvija.lv as a single electronic service environment to inhabitants and entrepreneurs, the development and

improvement of the State unified geospatial information website, the creation of CRM functionality for the assurance of a multi-channel service provision principle or centralised provision of geospatial data. In order to ensure that for the reception of private and **public sector services the same solutions may be used, it is necessary to ensure the possibility to use individual components also outside the framework of the public sector** (e.g., authentication, e-signature, e-invoicing, etc.).

It is necessary to continue and develop the collaboration and mutual exploitation of options of public and private sector electronic platforms and solutions, in the same time defining collaboration principles and exploitation conditions, which are directed towards long-term collaboration principles.

Taking into account the tendencies of planned policy initiatives and service delivery, it is necessary to continue the development of united, secure and user-oriented **service provision sites for private persons** (inhabitants and entrepreneurs) that will serve as a single contact point for administrative procedures for Latvian, as well as other EU inhabitants and entrepreneurs. Also, taking into account certain transaction opening principles determined in Section 5.4.1, it is necessary to evaluate **availability of central service provision platform, also** publishing of (state function providing) e-services introduced in **private sector**.

The solutions should be designed to be **interoperable with EU solutions** and standards. There should be **centralised solutions for customer service separation from provision of services** (knowledge management, event logging, and service information delivery to the responsible institution, etc.).

When developing service provision sites to entrepreneurs and inhabitants:
* the previous experience (Rural Support Service, the Central Statistical Office, State Revenue Service) should be taken into account;
* a convergence plan should be designed for the existing customer self-service websites, the gradually moving towards exploitation of the state centralised client service solutions, do not excluding possibility that after evaluation of usefulness they may function separately, using a sharing solutions of centralised platforms.

Similarly, the issues, which are not covered by national-level platforms and which are not intended for use at national level, can be developed in **sector-wide ICT sharing platforms** (e.g., public safety, education, health, justice, customs, taxation, digital cultural heritage, etc.).

In addition to technical issues, **administrative capacity of centralised sharing platform's manager** should be provided, in order to manage solutions at high quality and provide valuable **methodological support** to infrastructure users (standardisation of e-services development, guidelines and support, including developers). Sharing platforms and solutions developed within them must be sufficiently flexible to implement operational and incremental changes. Also, administrative procedures, which should be performed in order to use sharing infrastructure and its solutions, should be **decreased or simplified**.

5.4.3 Introduction of Official e-Mail Addresses for Inhabitants and Entrepreneurs

Wider use of electronic communication between public administration institutions and private persons (natural or legal) is one of the key instruments for the creation of efficient and people-oriented public administration.

There are a number of significant obstacles that restrict effective public communication with inhabitants and entrepreneurs in electronic environment. The most significant barriers are as follows:
* an official address of a private person in general is not available for institutions in an electronic environment;
* most of the documents intended for the submission to private person contain restricted information, whose submission via e-mail without encryption is not permissible. On the other hand, encryption is not available to most private persons due to its complexity;
* e-mail does not guarantee delivery of the document, due to this it is not possible to send messages using an e-mail where it is essential to receive a confirmation on the delivery reception (administrative process);
* in most cases, private persons do not have a safe solution for incoming and outgoing electronic document storage.

Required Actions

Safe and reliable way of communication and mutual information exchange between inhabitants, entrepreneurs and state should be developed. Electronically supplied information and services should have equivalent legal status to those that have been provided onsite.

Private persons (natural or legal) have to create secure and reliable official electronic address to which they will receive all official correspondence from the state, local governments and the justice institutions. The official email address will be integrated into institutional e-services and it is intended to use it in communication with both public institutions and private individuals, as well as in the long run the usage options and forms of this email address will be evaluated also for private sector service providers and for communication between private persons.

The solution will be a series of applications, ranging from secure and protected delivery of e-services results to even possibility to electronically deliver information on the polls, personalised information on guaranteed health checks, court summons, information on the real estate tax estimates, etc. It will be technology-neutral environment that will enable an inhabitant to choose the most convenient form to receive a message – starting from the usual e-mail to social networks.

For the implementation of activities the following is required:
* the establishment of the centralised solution for official addresses;
* institutions information system connection to the e-address centralised solution.
Conceptual solution of the official e-mail address is included in the Official e-mail address concept project (announced on State Secretaries Meeting of 12 July 2012, Minutes No. 28 8. §).

5.4.4 Digitalisation of Public Services

More than 70.2% of the population and more than 90% of entrepreneurs are using Internet on a daily basis to obtain information and receive commerce services. The Internet has the potential

for more efficient delivery of public services. The current practice suggests that the population is ready to use relatively complex and sensitive services in an electronic environment (e.g., online banking services). People prefer e-services because they offer opportunities to improve the speed of receiving services, regardless of the institution business hours and location of the inhabitant[45]. 2135 state and local government services were registered in public service catalogue in September 2013; significant communication part of private persons (inhabitants and entrepreneurs) and public administration consists of various types of transactions (submission of summaries and reports, provision of payments, issue of registration and permission, etc.). Their complexity differs – from the relatively simple, such as the declaration of residence, and to rather complex and with high added value, such as registration to university studies or tax administration services.

As the most significant obstacles for usage of e-services are complexity of administrative procedures (indicated by 89% of respondents which prefer the presence), other frequently cited reasons are lack of computer literacy (27%), as well as complexity of services[46]. This means that part of the existing e-services are based on outdated operational processes, insufficient attention drawing to the needs of end-users, as a result people are more comfortable receiving services in person, by phone or through third-party experts, as a result the objective of e-services creation has not been fully achieved. The barrier created for the inadequate use of e-services is the lack of strategic approach regarding their implementation (lack of the multi-channel service delivery strategies, choice of more useful digitalisation form, targeted implementation of the plan (the updating of relevant legal acts)), as well as the insufficient informing and training of workers and inhabitants.

Required Actions

In order to facilitate rational digitalisation of services, it is necessary to support digitalisation of cost-effective services, which is implemented only together with the **rebuilding of basic operation** processes and improvement in cross-sectoral view. Given that one of the important tasks of public services digitalisation is the provision of the most convenient and rational form of collaboration between institutions and inhabitants, digitalisation of services is closely linked and viewed in the context with other action directions of guidelines – starting with the improvement and security of public administration process and ending with raising of public awareness and ICT competences.

Institutions that develop e-services should **formulate a multi-channel service strategy**, which among other things clearly define achievable performance and efficiency target indicators of electronic service solutions, as implementation and exploitation promotion plan of electronic service solutions. For solutions to be implemented in the context of the institution's work and service strategies, as well as constantly improved according to the user needs each department should have the head of service management, as well as the person responsible for each electronic service (service manager).

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[45] Evaluation of public opinion regarding utilisation of e-services in Latvia. December of 2012. http://www.varam.gov.lv/lat/publ/petijumi/pet_Eparv/?doc=14321

[46] Evaluation of public opinion regarding utilisation of e-services in Latvia. December of 2012. http://www.varam.gov.lv/lat/publ/petijumi/pet_Eparv/?doc=14321
information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

A horizontally acceptable principle would be, for example, **services**, intended for public administration and entrepreneurs, **already initially should be oriented only to electronic reception**. **It is necessary to define only digitally available public services** – onsite state and local government services, which may gradually be fully digitalised, providing face to face consultations and support, if necessary. **Improvable priority services should be identified** that require development of cross-sectoral level service process; cross-sectoral level projects should be implemented (for example, the improvement of business environment and reduction of the administrative burden or services with high on-site demand). Information and data services that can be used in the creation of other services, including the private sector, should also be developed. For service digitalisation it is necessary to perform solution cost estimates to identify the most appropriate cost-effective form for the introduction of the service.

Primary digitalised services will be determined by identifying groups of services that will provide the most significant cumulative impact on the end users (in the form of reduction of administrative burden and development stimulation) or on the improvement of public administration process efficiency. Primary digitalised services will be identified:
a) by assessing the customer base, service provision intensity and the existing administrative burden. For the services with the cumulatively largest impact on society and the cumulatively largest burden, it is necessary to implement service provision and institution collaboration process improvement through ICT options;
b) by determining the service groups the provision of which from the customer point of view would be organised in a single process, with the cooperation of several departments. In this case, the participating institutions will have to develop improved service provision processes, which include collaboration between institutions and multi-channel availability of the service.

The detailed criteria for determining priorities of service will be developed within the framework of project evaluation criteria implemented through EU Structural funds. Justified service improvement solution will have to be provided for the improvement of services, by choosing an appropriate channel for target audience, as well as the provision of meaningful implementation of the solution and service development.

Given that public services are also used by the population, with insufficient ICT skills and limited access to the Internet, a **minimum access to the Internet should be guaranteed**, such as through the public library network. An opportunity to receive **consultations and practical assistance** on the usage of public administration e-services (regardless of department) should be provided in any public or municipal service provision spot, i.a., in onsite service spots enabling usage of open access Internet for the usage of e-services.

Given the broad range of the expected public e-services, they must be designed so that they can be used by the people with low ICT skills and awareness of public administration process knowledge, they must have **accessible and applicable from mobile devices**, as well as far as possible, **people with disabilities** would use them without support of others. An opportunity should be found where public **solutions could collaborate with private sector solutions** to, where appropriate, automate the mutual action between the state and private persons.

It is necessary to carry out targeted **e-services implementation and promotion measures** to ensure that the resulting solutions are replaced or significantly reduce the proportion of the service request in person, including user and employee informing and education, for companies

and inhabitants offer more beneficial conditions of use of e-services compared to traditional ways of receiving services (e.g., reduced service reception time, the lower state fees, etc.), etc.

With the development of the ICT options and usage, also geodesy and mapping industries have been developing, creating an entirely new approach and methods of information retrieval, processing and use. This industry-related geospatial information mainly is created in an electronic environment; thus, this information becomes available in the form of e-services. The development geospatial information in the country should be continued in order to provide geospatial information processing, access and utilisation opportunities for the wide range of public which would provide not only greater use of information in information systems and databases, which ensures operation of variety of emergency services, but also in agriculture, providing planning and support payment acquisition and promoting progressive agriculture, in construction, environment protection, faster and more accurate geodetic measurements in different areas – construction, cadastral survey, agriculture, transport, cartography, and other sectors of the economy.

Cartographic information has been available digitally relatively long time, but so far the terrain information available in the country is not in compliance with modern requirements. Methods for obtaining terrain information are outdated and resource-intensive methods and accuracy of the information is no longer sufficient for the sufficient use of spatial data (for example, cross-border data analysis, flood modelling). Such public administration functions and tasks, for provision which one of the factors is precise terrain data, are incomplete or not performed at all. For the production of fast and modern requirement compliant precise digital terrain and surface models, laser scanning data are required, which are obtained by aero-laser scanning method.

A more detailed review of the geospatial information field development is reflected in the Latvian Geospatial Information Development Concept project (announced on State Secretaries Meeting of 7 March 2013, Minutes No. 9, Paragraph 1).

5.4.5 Automated Issue and Acceptance of Electronic Invoices

With the development of electronic transactions and payments, e-invoicing can significantly increase the efficiency of the invoicing process in public administration and outside of it. E-invoicing allows automation of the invoicing process; thus, further increasing the current efficiency of payments (not just saving paper and time, but also benefiting from the process optimisation). E-invoicing is rather widespread in the private sector, noteworthy is proportion of automatically processed invoices (~ 38% of companies are sending or receiving them[47]), in public administration, however, automated invoice processing is still not widely used.

E-invoicing exchange should become the standard in public administration, starting with electronic procurement system, public procurements and governance, as well for received invoices. It is necessary to ensure compliance, and united e-invoicing exchange environment should be developed in collaboration with developers and holders of private sector solutions.

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[47] Digital Agenda Scoreboard: http://digital-agenda-data.eu/index.php?scenario=2&indicators[]=e_inv+ENT_ALL_XFIN+%25_ent&countries[]=EU27&countries[]=LV#chart
information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

In accordance with the Digital Agenda for Europe, e-invoicing by 2020 has to become the leading form of invoice exchange, while by 2016 the EU Member States are invited to set e-invoicing as the mandatory part of procurement procedures. The EC has estimated that the introduction of e-invoicing in Europe would generate annual savings of 1 billion euro.

Required Actions

It is necessary to create the **legal and technical environment** for the widespread use of **e-invoicing** options. With the introduction of electronic invoices in public administration, the focus should be put on preparation and processing of automatically processable invoices. To ensure that your invoices are being introduced globally, it is necessary to create **cooperation forum with private sector actors** and stakeholders (banks, accounting and financial system builders). It is necessary to agree on the **standards** to implement interoperable and international standards compliant appropriate solutions in the public and the private sectors. Public procurements and particularly **electronic procurement system should be an example** for e-invoicing systemic implementation in public administration.

5.4.6 Digitalisation and Availability of Cultural Heritage

Cultural heritage availability to the public in the digital environment and preservation of digital cultural heritage is one of the most important tasks if the field of culture, as defined by UNESCO, the EU and Latvian development planning documents. Given the changes in knowledge building, publication, search and access paradigm, and that the opportunity to seek and receive information is one of the rights enshrined in the United Nations Universal Declaration of Human Rights, it is essential to ensure that the Latvian cultural heritage as widely as possible and freely should be available in the worldwide web. Digitisation of cultural resources is one of the most important aspects for the creation and development information society and knowledge-based economy; therefore, it is important to use the opportunities offered by ICT to promote culture availability, culture presence in the World Wide Web both promoting preservations and dissemination of cultural heritage to the general public, so to the needs of other departments, and stimulating the development of new products and services.

As one of the key principles for information society defined in declaration of principles of World Summit for Information Society is access to information and knowledge, showing that the capacity of libraries, museums, archives and other cultural institutions should be strengthening in order to ensure the preservation of cultural heritage and free and fair access to information, as well as to maintain and strengthen cultural identity and cultural and linguistic diversity. WSIS Tunis Action Plan pledges to digitise cultural heritage for future generations and to develop standardised digital information preservation solutions.

In autumn of 2011 the EC published a recommendation on the digitisation of cultural material, online accessibility and digital preservation, stating that the digitisation of cultural heritage remains one of the EU priorities, as reflected in the Digital Agenda for Europe. EU Member States are encouraged to digitise more materials available in memory institutions in order to ensure that in the context of cultural and creative content, Europe retains its leading position internationally, and as rationally as possible is using its wealthy cultural material.

Required Actions

Action needed in the field of cultural heritage digitisation is planned in details in cultural guidelines "Creative Latvia" 2014–2020 (draft)[48], which define the main measures to be performed in the field of cultural heritage digitisation and new digital cultural content in order to ensure content availability and long-term conservation, including:
* digitisation of cultural heritage, including digitally generated cultural heritage, and creation of a publicly accessible digital collections;
* long-term preservation of digital cultural heritage to ensure, by the rationally using public resources, cultural and scientific heritage availability for future generations;
* development of services, which as widely as possible would ensure digital heritage and cultural content resources availability to the public, including the inclusion in digital products and services;
* incorporation of Latvian digital cultural heritage content into the European digital library *Europeana* and in other international cultural resources;
* exploitation of digital cultural heritage in general and higher education processes, as well as in lifelong learning activities.

5.4.7 Stimulation of Latvian Language Usage Distribution in the Digital Environment

Latvian is the official language the Republic of Latvia and one of the official languages of the EU, so it is necessary to make full use of it in all ICT application areas. Latvian society should have the opportunity to use all e-services, e-commerce capabilities, information access, e-learning solutions and other options provided by information technology in the official language. Also it is necessary to provide high quality translation of content in Latvian language, including public administration content, into other foreign languages.

The distribution of Latvian language and its usage in the digital environment is closely related to language technology development and exploitation level of the Latvian language. EuroBarometer and Multilingual Europe Technology Alliance studies[49] show that the Latvian language is among those languages of the EU which have not been sufficiently secured according to the requirements of the digital era, which reduces the possibility to use ICT options and threatens language's long-term existence due to the lack of technology support. This not only reduces the use of ICT, but also burdens to cross-border cooperation and integration of Latvia into EU's economic, political and cultural space. The use of machine translation will be particularly topical issue when Latvia will be fulfilling the role of the EU Presidency in 2015 and when tremendous amount of information in foreign languages will have to be processed very quickly.

The exploitation of machine translation in e-governance will help foreign companies to do entrepreneurship and will encourage investments in Latvia, as well as the integration of foreign businesspersons, students, education, science and culture sector employees into Latvian society. On the other hand, it will facilitate the access for Latvian population to the information of other EU countries; will help to ensure protection of the rights while working or studying in other EU

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[48] http://www.km.gov.lv/lv/ministrija/radosa_latvija.html

[49] The Latvian Language in the Digital Age, Rehm, Georg; Uszkoreit, Hans (Eds.), Springer, 2012, ISBN 978-3-642-30876-5, http://www.springer.com/computer/ai/book/978-3-642-30875-8, http://www.meta-net.eu/whitepapers/e-book/latvian.pdf; User language preferences online, Analytical report, Flash Eurobarometer 313 – The Gallup Organization, Coordinated by European Commission DG Communication, May 2011, http://ec.europa.eu/public_opinion/flash/fl_313_en.pdf
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countries. By adjusting the machine translation system, for example, for the cultural sector, it will make Latvian cultural values available to the world, making digital stocks of cultural and memory institutions available in other languages. The usage of Latvian-Russian machine translation in electronic information resources is reducing due to the information space separation, which separates the Russian-speaking part of the population, which is not sufficiently fluent in Latvian.

Despite the low international assessment, a number of widely used generic technologies has been developed for Latvian language – tools for writing in Latvian, correction of spelling errors in certain operating systems and digital devices, opportunities to divide words for hyphenation, a number of electronic dictionaries and terminology databases. There are also several ongoing innovative researches on machine translation and semantic technologies.

Since the scope of the Latvian language users is relatively small, the state should promote the creation of new digital content and ensure its availability and free usage. The limited market size cannot fully provide creation of such content on commercial basis; therefore, it is necessary to have programme for the creation of rich digital content, which is not limited only to digitisation of the existing digital content, but also is adding value to this content for future use.

Required Actions

To develop machine translation technologies adjusted to e-governance needs, to integrate them into the general e-governance technology infrastructure and provide their convenient use in e-governance services with an aim to ensure the usage of Latvian e-services in Latvian language, including also cross-border e-services provided by other countries, as well as e-services availability to all users groups, regardless of their language skills – both Latvian citizens, non-citizens and foreigners. This requires the development of machine translation quality, specialised sectoral coverage and translation directions (e.g., culture area). As a priority translation should be ensured for more widely used EU languages, as well as for Russian language necessary for cross-border co-operation, but gradually there should be an opportunity to translate between all EU official languages and the languages of the most important economic cooperation regions, for example, Chinese.

In the digital environment language is closely related to the development of language technology; therefore, it is necessary to ensure the free usage of digital content for the language technology development needs, not only technically providing free access to digital content, but also by changing the regulatory database that would allow to use copyright and other protected content for the research purposes.

5.4.8 E-Health Solutions for Efficient, Safe and Patient-oriented Health Care

E-health implementation in Latvia was launched in 2005, when the Cabinet approved the guidelines for the "E-health in Latvia"[50]. Within the framework of EU Structural Funds planning period 2007-2013 Phase 1of e-health project is being implemented and in 2013 Phase 2 of the project has been launched. E-health website, e-booking and e-shipment information system, electronic health cards, e-prescriptions and integration platforms for solution IS have been

[50] Cabinet Order No. 560 "On the e-Health Guidelines in Latvia" adopted 17 August 2005. information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

developed within the framework of e-health project Phase 1. Within the framework of e-health project Phase 2 it is planned to develop already existing e-health IS, as well as to develop industry statistics and data analysis IS.

The aim of the e-health solution implementation is to promote a person-oriented health care development, improve the health sector efficiency and quality and to promote the rational management and monitoring of the sector, because the availability of patient's health data in e-health IS reduces the time necessary for doctors to obtain information on patients from other medical institutions, medical decisions are made based on more timely and complete information, availability of information on medical tests allows avoiding duplication of information, gathering process of health care statistical information has been promoted and information availability for health sector planning and administration has been improved.

Required Actions

Taking into account ICT and e-health development trends, public demand for a higher level of service, as well as demographic projections, it is necessary to continue the development of already existing e-health solutions and the creation of new solutions, as well as to achieve a wide range usage of e-health services.

E-health should support personalised, patient-oriented health care services; by using ICT it is necessary to develop such e-health solutions and services that enable and facilitate the patients' active participation in their health care, improve care of patients with a chronic diseases, increase the autonomy, mobility and safety of population in all Latvian regions, improve health services quality and efficiency, as well as health sector management. The implementation of common medical personnel identification and data exchange solution among the EU Member States should be facilitated for the provision of successful healthcare within the EU framework, including healthcare of Latvian inhabitants in other EU Member States and healthcare of inhabitants other EU Member States in Latvia. To ensure the effective creation and exploitation of the above mentioned processes, considerable attention must be paid to e-health solutions interoperability and standardisation, i.a, using the standards created within the framework of EU projects and good practice obtained during implementation of these standards, open and user-generated data for improving the quality of health care, and telemedicine services development.

In addition to that, ICT solutions should be developed to ensure exchange of statistical data, which is under the competence of the Ministry of Health, with geospatial information systems according to the EU Directive 2007/2/EC establishing an Infrastructure for Spatial Information in the European Community (INSPIRE Directive) requirements.

In order to provide wide usage of e-health solutions and to promote the development of applications for health sector, they should be easy to use and safe. Therefore, judicial regulation of processing of personal data accumulated in e-health IS, should be developed to ensure the protection of natural persons' data. Both patients and health care professionals should be educated on e-health opportunities and benefits and should be involved in the development of e-health solutions. The experience gained during EU Structural funds' planning period 2007-2013 has shown that support for medical facilities in order for them to use solutions offered by e-health and rearrange their internal processes have been inadequate. Due to this, it is necessary to envisage appropriate measures in this area for the next EU Structural funds' planning period.

5.5 Action Direction "Cross-border Cooperation For Digital Single Market"

Due to the existence of free movement of inhabitants, goods and services, Latvia should incorporate into the Europe's Digital Single Market. So far, Latvian e-governance has developed at a national level, however, Latvia's public services and in some cases -– also data should be available throughout the single market. Therefore, in order to ensure cross-border cooperation in the digital single market, free movement of goods and services, as well as the free flow of population, it is necessary to ensure national e-governance solution interoperability with the EU solutions, as well as to develop content for provision of cross-border services and solution for the exchange of information in different sectors (e.g., health, justice, etc.). By facilitating the cross-border register collaboration, person identification and ability to manage business across borders, the development of commerce (including e-commerce) will be indirectly promoted.

Further actions will be planned in the following areas:
* the creation of cross-border e-services and data exchange solutions;
* development of base solutions for the provision of cross-border services.

5.5.1 The Creation of Cross-border E-Services and Data Exchange Solutions

A range of initiatives for cross-border cooperation has been launched at European level. Centralised funding for these initiatives is usually available only for the creation of European level centralised systems and components, while the adjustment of corresponding Member State systems and development of exchange solution is responsibility of the respective Member State. In addition, in some cases, where such cooperation has not yet been determined by the regulations or directives, such cross-border solutions are not usually the priorities for the investments. For example, Latvia has not engaged in any of the major cross-border e-governance projects and Latvia's ability to fully participate in the Single European processes is at risk in the near future.

It is necessary to ensure reliability of the business environment information, and timely access and exchange of information among all EU Member States' records, convenient availability of customs services in electronic form, as well as the adaptation of the existing systems in line with the EU Customs Code. Support data exchange with the central EC and Member States' customs systems. To improve availability and quality of tax administration related data by developing e-tax environment and improving tax administration process, availability of services and usage of opportunities in economic activity. Also, the availability of geospatial data in the central European community solutions should be ensured.

Required Actions

In order to facilitate Latvia's integration into Digital Single Market, it is necessary to encourage institutional involvement in cross-border projects, including by supporting targeted activities for the performance of necessary adaptations (including to ensure uniform technological standards, cross-border data exchange infrastructure, information security procedures, etc.). Cross-border collaboration measures in the level of particular institutions are supportable if it is they grounds for practical usage – a real necessity of service or data exchange solutions for the performance of the specific sector's or field's tasks and goals (for example, inclusion in the single euro payment

area (Single Electronic Payment Area), cooperation with customs declaration single Electronic access Point, collaboration of European company registers, circulation of patient data, medical records and medical information, information exchange in judicial and social security areas, etc.).

Eligible investments in the following areas:
* development of cross-border e-services and information exchange;
* adaptation of the existing solutions and resources for cross-border collaboration.
Cross-border services should be developed in accordance with the highest added value that they are adding to the national economic policy. The content of cross-border services and cooperation partners are identifiable under this criterion.

The priority directions of cross-border cooperation are included in the cross-border project eSENS and in the Connecting Europe Facility:
* open data;
* public procurement;
* e-law;
* e-health;
* enterprise mobility;
* enterprise registers;
* *Europeana;*
* multilingual access.

5.5.2 Development of Base Solutions for the Provision of Cross-border Services

Platforms, components and solutions, which are shared regardless of area, are necessary for the exchange of cross-border services and information.

Required Actions

In order to ensure creation of rationally organised and interoperable cross-border collaboration solution, it is necessary to develop cross-border functionality for cooperation with the EU common use solutions and large scale design solutions into the national common use platforms and solutions (such as eID, e-signatures, e-documents, e-delivery solutions, e-invoicing, machine translation).

5.6 Action Direction "ICT Research and Innovation"

Due to global processes and increasing competition growth and competitiveness of enterprises, especially SMEs, depends both on the ability to apply new knowledge, organisation and working methods, and the capacity to engage in research developments commercialisation processes to develop new products, services or processes. Investments in innovation, research and development are critical to enterprises, which generated products and services provided in the digital era, due to the increasing demand and competition, are subject to even more rapid pace of technological and process change.

5.6.1 ICT Research

Latvia has one of the lowest funding for research and development in the EU Member States, which, according to the Central Statistical Bureau in 2011 was 0.70% of GDP (compared to - the EU average of 2.0% of GDP in 2010). Private sector funding for research and development in 2011 was only 25% of the total research and development funding. In addition, the Latvian indicators of investment in research and development is still lagging behind the Latvian National Reform Programme "Europe 2020" strategy for the implementation of a given target, which until 2015 provides to increase the amount of Latvian total investment in research and development up to 1% of GDP (in 2020 – 1.5% of GDP).

Analysing the overall availability of human resources in research and development area[51], it can be concluded that:
* Latvia has a small number of people employed in research and development (0.57% of employees in 2010[52]), its sectoral breakdown does not stimulate the commercialisation of knowledge;
* aging has been observed among Doctors of Sciences, but new specialists in the so far failed to provide the reproduction of academic and scientific personnel;
* lack of natural sciences, engineering and technology students, number of persons with higher education and doctoral degrees, who could develop and implement new technologies;
* proportion of university graduates aged 30 to 34 years, as well as the total number of students in the country provide the workforce with sufficiently high qualification for implementation of research results and development of innovative enterprises;
* increasing number of PhD graduates that attracts additional human resources for science, forms the basis for the development and production of high-tech products; thus, promoting economic development on the basis of innovation.

Computer Science, Information Technology, Electronics and Telecommunications

Computer science, information technology, electronics and telecommunications are developed by Latvian universities and other scientific institutions, as well as by ICT sector companies with the full or partial support of EU Structural funds. The main objectives in the context of Latvia:
* participation in performance of basic studies. For such small country as Latvia it is impossible to become a part of all directions of basic research. It supports the development of individual ICT directions in Latvia, which has scientist collectives working on world-class productions. State support is implemented as an administrative, organisational and financial support (co-financing) to those projects, which within the cross-border cooperation include collectives of Latvian scientists performing basic research;
* performance of applied research, which initiates the development of new advanced ICT products and technologies that afterwards are implemented within the framework of innovation. Applied research should be concentrated in certain directions, which support the transfer of knowledge to innovative enterprises in order to develop this knowledge to the level of competitive export product. For example, the relevant actions are operation process modelling and optimisation, interoperability of information systems, security, cloud computing, as well as

[51] http://www.birti.eu/lv/jaunumi/item/download/16_fb21605a174bebb826f6a35c73ad109c
[52] http://www.birti.eu/lv/jaunumi/item/download/16_fb21605a174bebb826f6a35c73ad109c
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the development and availability of base technologies for the use of Latvian language in the digital environment;
* ICT-oriented research support in economy sectors indirectly related to ICT (medicine, metallurgy, machinery, agricultural production, etc.). It includes the identification of possible use of ICT, prioritisation and support to cooperation between ICT companies and non-ICT industry companies that are actively investing in innovative ICT solutions;
* training of higher qualification (with a doctorate degree) specialists to perform researches, tasks of academics and experts in Latvia's ICT sector, as well as to work in ICT industry companies. The experience of EU structural funds planning period 2007-2013 shows that specifically the attraction of EU Structural funds to science has sharply increased the defended doctoral theses and the number of publications. During the period from 2000 to 2005 only 14 doctoral works have been defended in Latvian ICT industry, but starting from 2006, when EU Structural funds became available, an average of 10 doctoral works have been defended yearly. The number of defended doctoral theses shown in Table 4 characterises the ICT research activity in Latvia[53].

Table 4

Number of Defended Doctoral Theses in Information Technologies

Year	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Total number of doctoral theses			311	399	311	302	287	325	295
Number of ICT industry doctoral theses	6	2	10	9	11	9	4	14	21

Table 4 shows that the number of defended doctoral theses increased significantly after 2010, coinciding with the availability of EU Structural funds support for doctoral studies. The number of publications (about 350 in the period from 2006 to 2011) of Latvian computer science researchers is in the 6th place among all branches of science.

Communication Science

Information society is characterised by continuously growing amount of information generated and consumed by society, which is becoming more demanding in terms of information search and retrieval systems and the public information literacy. These changes affect every area of the economy and are a challenge for all institutions and professions whose subject of work is the information. The role and functioning of the information in society and human life, including the perception of information and the effect, accumulation and usage, information impact on the social interaction, communication science and its subsectors. Social role of communication science is to encourage the information users to access the most relevant sources of information,

[53] Section 5 "Computer Science" and Section 18 "Information Technology" of Scientific sector and subsector list of Latvian Council of Science have been referred to ICT research
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and it must contribute to the development an information search and retrieval system that in optimal form provides free and convenient access to the necessary information, conducting researches in such directions as human-computer interaction, information architecture, its structuring for different purposes, information retrieval in different systems and relevance of the retrieval results, information ethics, knowledge management and engineering, semantic web, etc. areas.

Required Actions

It is necessary to carry out the following actions in the ICT research area:
* support to fundamental studies of the ICT sector in the form of state administrative, organisational and also a financial support (co-financing) for those Latvian scientists collective projects, which are carried out in the EU and other internationally funded programmes;
* support to the field of ICT applied research in the form of EU Structural funds funding for Latvia available for winning projects of tenders with partial co-funding of scientific research performers. Applied research results are scientific publications, new products or technological developments;
* support to training of higher qualification (with a doctorate degree) ICT professionals, including EU Structural funds available for Latvia for the tender winning doctoral works. ICT research projects are the basis for the development of scientific work – publications and doctoral theses, as well as of creation of new knowledge and approbation of the technologies that create competitive advantages;
* support for the creation of ICT security and cryptographic base, by promoting the preparation of professional ICT security, cryptography and cryptanalysis experts;
* to promote the usage of Latvian language in the digital environment, development and access of basic technology and a wide research base of Latvian language computational linguistics should be provided. Language research and technology development is essential precondition for the creation of Latvian Language National Corps, which should be conducted as a computerised collection of written and spoken Latvian language, reflecting the modern Latvian language and its historical development. This is necessary for the development of Latvian language computer technologies, creation of dictionaries, research and development. In order to overcome the "digital gap" in the technological development of the Latvian language, which separates it from the larger European and world languages, it is necessary to provide targeted support to research and development in computation linguistics, support knowledge transfer from research institutions to technology companies, as well as cross-border collaboration between Latvian researchers and entrepreneurs and EU membership in research and innovation programmes (*Horizon 2020*);
* carry out research in the fields of communication sciences with a view to develop the most relevant knowledge organisation and information retrieval systems according to human information needs;
* improve the quality of study programmes implemented in the ICT fields in Latvia and increase the international educational and research competitiveness of the field of ICT;
* to develop and make available terminology of the ICT field in Latvian;
* to provide dissemination of publicly-funded scientific research results and data and open data, free access and re-use.

More information on the development of ICT research areas will be included in Research, Technological Development and Innovation Guidelines 2014-2020 (in development process).

5.6.2 Innovation

State activity in the field of innovations is characterised by innovative companies and summary of their performance indicators. According to the Central Statistical Bureau, in the period from 2008 to 2010 in average in Latvia only 30% of all companies were innovative[54] (in the reporting period 2006-2008 – 24.3%), while the average EU figure is 52%[55]. However, innovative business turnover in 2010 amounted to 54.5% of total turnover, demonstrating that the demand for innovative companies' products or services is higher, providing competitive advantages to innovative companies.

Each year the EC is publishing the research of ES Member State innovation result overview Innovation Union Scoreboard Scoreboard[56], which is an important source of information on the innovation performance of EU Member States. In a report published in 2013 for the year 2012, Latvia has been ranked 25th among 27 countries surveyed. Analysing this study, it can be concluded that the relatively better performance indicators Latvia has in human resource development, as well as in the funding and support area. Latvian rating has improved also in intellectual property index, as well as in areas that are characterised by the development of innovative enterprises and business cooperation. Still lower are the indices of research environment, company investment and economic impact indicators.

In order to improve the innovation performance of Latvian companies, including increased proportion of medium-high and high manufacturing and service sectors in Latvian economic structure, it is necessary to create balanced and mutually complementary support toolkit, which is focused on the creation, dissemination of the usage of this knowledge.

Required Actions

For the stimulation of innovation activities in the field of ICT, it is necessary to implement the following actions:
* support to companies for development of new ICT products and technologies – industrial researches, experimental development and strengthening of industrial property rights;
* support to creation and development of new innovative companies – for ICT idea development, business start-up counselling and provision of incubation services, according to the development needs of technology-intensive ideas, and by providing availability of financial instruments for the support of innovative and technologically intensive businesses in early stages of their development;
* the development of technology transfer system, promoting entrepreneurship and ICT research sector cooperation in carrying out joint research, as well as support for the purchase of SME research services.

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[54] An innovative company is the company that during reporting period has introduced at least one innovation: technological (product and process), marketing or organisational innovations
[55] 2006-2008, Eurostat
[56] "Innovation Union Scoreboard" study assesses a wide range of indicators in eight key areas crucial for innovation development – human resources; research environment openness, excellence and attractiveness; funding and support; business investments; cooperation and entrepreneurship; intellectual property; innovation activity; economic effects information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

Development of innovation areas is also reflected in the National Industrial Policy Guidelines for 2014-2020 (approved by Cabinet Order No. 282 "On the National Industrial Policy Development Guidelines" adopted 28 June 2013), and will be included in Research, Technological Development and Innovation Guidelines 2014-2020 (in the development process).

5.7 Action Direction "Trust and Security"

A secure and reliable electronic information space, which ensures the continuous provision and reception of services that are essential for the state and public, is a key component for the successful development of the information society. Illegal use, damage, paralysis or destruction of ICT may pose a threat to national and public security, public order and may negatively impact the national economy. With the help of ICT, it is possible to stop or intrude the operation of the state information systems and electronic communication networks, depress country's political, economic, and military decision-making, to misinform the public, and cause technogenic disasters. Uncertainty created in electronic information space affects the reliability of ICT and correspondingly slows down and complicates the creation of modern and innovative society, as well as the economic growth and global competitiveness of Latvia.

The trust in electronic environment is an important aspect of information society. One of the obstacles for the e-commerce development at the national level, but particularly at the cross-border level, is a lack of trust in electronic environment[57]. It is related to aspects of information security and consumer rights protection issues.

In order to promote public trust in the electronic environment, not only the existing laws and regulations have been improved and new laws and regulations have been designed to strengthen the rule of law in electronic information space, but also ICT resources have been strengthened – environment, people and infrastructure, public awareness of ICT issues and international cooperation has been enhanced, as well as the development of capabilities to cope with crisis situations.

Further actions are planned in the following fields:
* ICT security;
* human security;
* trust in the electronic environment.

5.7.1 ICT Security

With the increase of population activities in the electronic information space, security challenges in this environment are increasing. Problems such as incomplete legislative framework, electronic communications security requirements for merchants and their implementation, limited material and technical means and human resource in CERT.LV and the State Police, shortage of ICT experts in state and local government institutions as well as public awareness and low research contribute to increased safety risks in the electronic environment.

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[57] http://ec.europa.eu/internal_market/e-commerce/docs/communication2012/SEC2011_1640_en.pdf; http://europa.eu/rapid/press-release_MEMO-08-426_en.htm
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A significant part of the ICT security incidents are characterised by insufficient knowledge or unconscious behaviour, which in turn leads to unnecessary security risks to state and local government institutions, companies and other natural persons.

At the same time the state has limited resources to monitor, identify and accumulate harmful developments in electronic information space, to obtain full overview of the activities that have already taken place, as well as to enforce security and perimeter defence to stop ICT security incident or reduce (eliminate) its impact in case of potential ICT security incident.

Required Actions

Due to the rapid development of ICT in the world and increase of its complexity and volume of usage, in order to strengthen the trust and security of electronic information space, Latvia should:
* improve material and technical as well as human resource provision for the state and local government institutions to work with the ICT security issues;
* continue to develop country's abilities to identify (from safety aspect) damaging events or acts that endanger the ICT integrity, accessibility or confidentiality in the electronic information space, and maintain their historical information;
* develop abilities to create new ICT security solutions;
* develop new abilities to design, test, analyse and monitor ICT security processes (e.g., vulnerability and intrusion testing, compliance testing, performance assurance and measurement);
* continue to develop country's abilities to strategically plan and monitor the security of electronic information space;
* improve abilities to respond effectively to crises situations in electronic information space, provide support, mitigate the negative consequences and use the gained experience;
* strengthen the rule of law in electronic information space;
* promote public awareness and understanding on ICT security;
* promote safe e-services development, implementation and maintenance.

Detailed reflection of the ICT security development issues are indicated in the draft guidelines for "Latvian Information Technology Security Strategy 2013-2018" (approved by the Cabinet Committee meeting of 25 February 2013, Minutes No. 8, Paragraph 1).

5.7.2 Human Safety

Aspect of security involves not only the ICT security but also human security. In state and public relations it is necessary to accent the need to find harmony between the human desire for the state to act as a human security fastener, and the country's readiness to protect human safety not only from outside but also from various internal threats. It is essential that country's abilities to protect people and people's desire for security are consistent.

ICT solutions can greatly increase human security – helping to save human lives by organising communication between the inhabitants and the operational services and coordinating activities in emergency and crisis situations, as well as to create opportunities for people with the help of ICT to provide early warning signals of potential threats, which help the state and public to provide prevention.

One of the practical ways to carry out this is to provide inhabitants with the opportunity to make timely and qualitative emergency calls through a wide range of communication means and

receive assistance of competent services, but emergency services have to effectively handle incoming calls and send appropriate help in a timely manner. Effective and coordinated action in emergency situations and in each individual case of assistance significantly improves the quality of emergency delivery and strengthens human security.

Required Actions

To ensure high quality and EU requirement compliant emergency services, it is necessary to create single technology platforms for all the emergency services involved in the provision of emergency services so that they use a single or at least fully compatible set of systems that would significantly reduce the response time to assistance requests and to increase the exchange of information security. In addition, it is necessary to lay down common principles for the development of technological for all services involved in provision of assistance so that modernisation of one service does not disarrange the technical collaboration between other services.

Public education on the ways to summon assistance, as well as the provision of assistance reception, thus increasing confidence in getting help, should be continued.

5.7.3 Trust In the Electronic Environment

Information society exists and develops thanks to public and ICT interaction, in addition, the higher added value ICT is able to provide to the public, the greater is the ICT impact on the individual and society as a whole. The situation is additionally aggravated by the fact that ICT solutions include technically and legally complex, hardly understandable and comprehensible concepts and their implementation mechanisms, as a result individual's natural protective response does not create motivation to start using the new ICT solutions. Therefore, it should be taken into account that the public perception of the ICT usage will vary – both technology enthusiasts and "wise wait and see" persons are present. Therefore, for a smooth and successful development of information society it is essential to timely achieve the awareness of the "wait and see" part of the public on the range of ICT solutions and services, expected result, required prior and subsequent action, technological and legal certainty and confidence.

Not less importantly, ICT solutions and services should be built, so that by using them, they allow the user to feel safe and confident of the results, create a positive experience, would not allow the user to feel overwhelmed and would help to resolve ambiguous situations. Actions of ICT solution developers and services providers play an important role as well, by following recognised safety standards, guidelines and industry best practice, developing solutions and offering their services.

Trust in the electronic environment is also hindered by ignorance and lack of understanding of electronic data, including the options of electronic document long-term storage. Electronic transfer of data to the State Archive is one of the most important public e-services which has not got practically simple and legally set solution. It is not clear how to transfer electronic data into archive, thus the overall development of e-services is hampered. The improvement of this e-governance function would allow the development of more e-services and usage of e-documents in services.

Trust in the electronic environment in the wider society is impossible without the ability to protect individuals, especially children, from harmful or unwanted Internet content and the ability to provide the necessary assistance and support in situations where exposure to such harmful content on the Internet has occurred or is suspected. It is also important to stop quickly as possible the access to the harmful Internet content. As mentioned in Section 5.1.1 of the guidelines, operation of Hotline (reporting illegal and harmful content on the Internet), as well as the support to operation of SIPCR Children and teenagers hotline 116 111, providing opportunities for children and young people to report violations on the Internet and to receive psychological support, until 31 October of 2014 will be provided by Latvian Internet Association within the framework of Net-Safe Latvia Safer Internet Centre operation. In order to make room for the continuation of activities after the mentioned period, it is necessary to ensure appropriate funding for the activities, as well as to develop a unified model of institutional further co-operation and establish division of institutional competences. The said issue has to be solved within the framework of the State ICT security strategy development.

Required Actions

In order to promote the inclusion of companies into the information society, creating trust in the electronic environment, the following is required:
* to ensure improvement of the public e-skills explaining both – the content, benefits, expected results and limitations of the offered ICT solutions and services to the public, content, as well as the behavioural standards and practices related to ICT environment;
* to arrange the legal framework of electronic identification services, introduce common technological and security standards, establish a credible and workable electronic identification service monitoring system as part of a national ICT security monitoring and coordination mechanism;
* to provide long-term storage capability of practically functional and convenient electronic data, thus reducing uncertainty and public distrust to e-documents and e-services. An opportunity to develop electronic data archiving-related legal framework should be considered and facilitate practical cooperation between national archives and private sector to provide electronic data archiving;
* to achieve that the electronic identity card (eID) is issued simultaneously with the user information on eID usage possibilities and advantages in electronic environment, including availability of e-services and formal electronic communication;
* Provision of SIPCR Children and teenagers hotline 116 111 consultations and support on safety in the Internet[58];
* Hotline for reporting illegal and harmful Internet content[59];
* to improve public awareness on the operation of consumer rights protection mechanism and its security in e-commerce applications; thus, contributing to the development of e-commerce.

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[58] Foreseen activities have to be implemented in the close relation with the action direction "ICT Education and e-Skills"

[59] Foreseen activities have to be implemented in the close relation with the action direction "ICT Education and e-Skills"
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6. Planning of further action

The policy goal defined in the Guidelines	*To establish a knowledge-based economy and improve the general quality of life by making a contribution to the promotion of public administration efficiency and State competitiveness by ensuring a possibility for everyone to use the opportunities provided by information and communication technologies*			
Tasks and main activities for achievement of the set goal	**Deadline**	**Responsible institution**	**Involved institutions**	**The necessary financing (indicative) and its sources[60]**
Action direction to reach the goal[61]	**1. ICT education and e-skills**			
1.1. Improvement of the e-skills of inhabitants, entrepreneurs and public administration officials	The 4th quarter of 2020	MEPRD	local governments, all ministries	LVL 4 035 294 (incl. ERDF financing in the amount of LVL 3 430 000 and national co-financing LVL 605 294) *A task of NDP 2020 "Development of digital content and other products and e-services, thus expanding the accessibility and possibilities of use of such services in economic activity; improvement of the e-skills of the population" (Paragraph 415), activity: Improvement of the e-skills of the population*
1.2. Training of employees organised in partnership	The 4th quarter of 2020	MoE	LIAA	LVL 15 000 000[62] (incl. ESF financing LVL 5 250 000 and private co-financing LVL 9 750 000) *A task of NDP 2020 "Continuous training for entrepreneurs concerning the possibilities of improving the competitiveness of businesses (in particular, on the optimisation of processes, efficient use+ of resources, use of ICT) as well as to improve the qualification of the management and staff of businesses and promote the introduction of more efficient organisational and manufacturing processes, management methods and business models" (Paragraph 130), activity: Support to the training of employees organised in partnership by also performing audits of processes and technologies and providing consultative support and subsidised services for implementation of the process innovations and more efficient production methods in merchants*

[60] The aforementioned financing is indicative financing and changes are possible in it until the approval of the planning documents of the EU Structural Funds and the Cohesion Fund of 2014 - 2020
[61] Linkage of the tasks with subdirections of the action directions is included in Appendix 2 to the Guidelines
[62] Only part of the indicated financing applies to implementation of the activity
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1.3. Training of e-skills to the unemployed and persons seeking employment, incl. employers	The 4th quarter of 2020	MoW	NVA, MoES, MoE, local governments, NGO, social partners	LVL 67 770 000[63] (incl. ESF financing LVL 57 604 500 and national co-financing LVL 10 165 500) *A task of NDP 2020 "Promotion of competitiveness and access to the labour market for residents subject to the risk of social exclusion and unemployed persons by providing access to current motivational, skill improvement, competency building, educational and social support services (including temporary employment opportunities)" (Paragraph 249), activity: Promotion activities of training (incl. e-skills) and competitiveness for the unemployed and persons seeking employment, by also involving employers*
1.4. Training of adult e-skills to employees (especially in the pre-retirement age group)	The 4th quarter of 2020	MoW	MoES, MoE, NGO, social partners	LVL 19 000 000[64] (incl. ESF financing LVL 16 150 000 and national co-financing LVL 2 850 000) *A task of NDP 2020 "Promotion of competitiveness and access to the labour market for residents subject to the risk of social exclusion and unemployed persons by providing access to current motivational, skill improvement, competency building, educational and social support services (including temporary employment opportunities)" (Paragraph 249), activity Adult education activities for employees (especially in the pre-retirement age group)*
1.5. Establishment of the digital text book library	The 4th quarter of 2020	MoES	VISC, local governments, MEPRD, MoC, social partners, NGO	LVL 694 118 (incl. ESF financing LVL 590 000 and national co-financing LVL 104 118) *A task of NDP 2020 "Introduction of innovative forms of curriculum content and activities in elementary and secondary education to promote creative and entrepreneurial ability: a digital learning environment, contemporary methods of foreign language acquisition, improvement of natural and social science curricula, strengthening of the career education system" (Paragraph 290), activity: Establishment of the digital text book library*
1.6. Development of the curriculum integrated in the fields of	The 4th quarter of 2020	MoES	VISC, local governments, MEPRD, MoC,	LVL 1 058 824[65] (incl. ESF financing LVL 900 000 and national co-financing LVL

[63] Only part of the indicated financing applies to implementation of the activity, indicatively – LVL 10 040 000
[64] Only part of the indicated financing applies to implementation of the activity, indicatively – LVL 1 900 000
[65] Only part of the indicated financing applies to implementation of the activity
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education for children from the age of 5 years old to Form 6 (incl. in relation to algorithmic thinking and information literacy)			social partners, NGO	158 824) *A task of NDP 2020 "Introduction of innovative forms of curriculum content and activities in elementary and secondary education to promote creative and entrepreneurial ability: a digital learning environment, contemporary methods of foreign language acquisition, improvement of natural and social science curricula, strengthening of the career education system" (Paragraph 290), activity: Development of the curriculum integrated in the fields of education for children from the age of 5 years old to Form 6*
1.7. Development of digital training materials in general education	The 4th quarter of 2020	MoES	Local governments, MEPRD, MoC, social partners, NGO, merchants, derived public persons	LVL 2 966 667 (incl. ESF financing LVL 1 780 000, national co-financing LVL 314 118 and private financing LVL 872 549) *A task of NDP 2020 "Introduction of innovative forms of curriculum content and activities in elementary and secondary education to promote creative and entrepreneurial ability: a digital learning environment, contemporary methods of foreign language acquisition, improvement of natural and social science curricula, strengthening of the career education system" (Paragraph 290), activity: Development of the digital training materials in general education (basic education, secondary education) - development of innovative digital training kits*
1.8. Arrangement of natural sciences classrooms in primary schools and elementary schools (incl. acquisition of appropriate training equipment, purchase of software, etc.)	The 4th quarter of 2020	MoES	local governments	LVL 18 000 000[66] (incl. ERDF financing LVL 15 300 000 and national co-financing LVL 2 700 000) *A task of NDP 2020 "Introduction of innovative forms of curriculum content and activities in elementary and secondary education to promote creative and entrepreneurial ability: a digital learning environment, contemporary methods of foreign language acquisition, improvement of natural and social science curricula, strengthening of the career education system" (Paragraph 290), activity: Arrangement of natural sciences classrooms in primary schools and elementary schools*
1.9. Support to the implementation of the functions of the	The 4th quarter of 2020	MoES	Local governments, state	LVL 10 000 000 (incl. ERDF financing LVL 8 500 000 and national co-financing LVL

[66] Only part of the indicated financing applies to implementation of the activity information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

methodical centres in the ICT field[67]			gymnasiums	1 500 000) *A task of NDP 2020 "Introduction of innovative forms of curriculum content and activities in elementary and secondary education to promote creative and entrepreneurial ability: a digital learning environment, contemporary methods of foreign language acquisition, improvement of natural and social science curricula, strengthening of the career education system" (Paragraph 290), activity: Ensuring access to electronic learning media – purchase of the technical provision*
1.10. Ergonomic arrangement of the learning environment and support for the introduction of innovative ICT solutions in the learning process for the introduction of an improved curriculum of general education in regional secondary schools[68]	The 4th quarter of 2020	MoES	local governments	LVL 57 400 000 (incl. ERDF financing LVL 28 700 000 and national co-financing LVL 28 700 000)[69] *A task of NDP 2020 "Introduction of innovative forms of curriculum content and activities in elementary and secondary education to promote creative and entrepreneurial ability: a digital learning environment, contemporary methods of foreign language acquisition, improvement of natural and social science curricula, strengthening of the career education system" (Paragraph 290), activity: Ensuring access to the electronic learning environment – purchase of the technical provision (LVL 2 000 000)* *A task of NDP 2020 "Definition and implementation of a basket of public services for different levels of settlement: (a) services in national and regional development centres (9+21); (b) services in rural territories (outside national and regional development centres)"(Paragraph 417), activity: Small rural schools, optimisation of educational establishments (LVL 8 000 000)* *A task of NDP 2020 "Promotion of youth employment, including (a) a careers education system; (b) integration of young people into the labour market following the completion of vocational or higher education, including business start-ups; (c) support measures for unemployed youth to obtain first work experience; (d) improvement of the infrastructure and facilities of vocational education institution" (Paragraph 248),*

[67] The task shall be reviewed in relation to the draft Education Development Guidelines for 2014 - 2020
[68] The task shall be reviewed in relation to the draft Education Development Guidelines for 2014 – 2020
[69] The financing is specified indicatively by taking into account that it is not agreed within the framework of the planning period documents of the EU Funds of 2014 - 2020 information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

				activity: Ensuring a modern learning environment for preparation of the youth for the labour market – improvement of the infrastructure and equipment of vocational education institutions according to the vocational education programmes to be implemented in the context of the labour market development trends (LVL 20 000 000)
1.11. Improvement of the professional qualification of teachers, incl. entrepreneurial abilities, leader abilities, creativity, ICT and foreign language skills	The 4th quarter of 2020	MoES	VISC, local governments	LVL 6 000 000[70] (incl. ESF financing LVL 5 100 000 and national co-financing LVL 900 000) *A task of NDP 2020 "Training and recruitment of highly qualified and creative teachers for general education: (a) recruitment of young and talented teachers; (b) improvement of professional teaching qualifications; (c) an in-service training and mentoring system for young teachers; (d) comprehensive monitoring of the quality of education" (Paragraph 293), activity: Improvement of the professional qualification of teachers, improvement of entrepreneurial ability, leading, creativity, ICT and foreign language skills of teachers, improvement of the skills of work with talented students, as well as courses of 36 hours once per three years are provided for teachers in inclusive education pursuant to the requirements of the regulatory enactments*
1.12. Improvement of the practical skills of teachers and work experience advisers involved in vocational education (incl. ICT skills)	The 4th quarter of 2020	MoES	local governments, MoE, MoW, MoA, MoC, social partners, NGO, vocational education institutions, colleges, employer organisations or Professional organisations, planning regions	LVL 3 507 100 (incl. ESF financing LVL 2 980 000 and national co-financing LVL 527 100) *A task of NDP 2020 "Improvement of the competencies of teachers and work experience advisers involved in vocational education in accordance with the trends of the labour market; capacity building of vocational education institutions (including teachers) with respect to adult education" (Paragraph 295),* *activity: Improvement of lifelong learning competencies, improvement of (foreign language, IT skills) and professional competencies in particular fields (for teachers of professional subjects) for raising competitiveness - 1200 teachers and work experience advisers in the entire vocational education system;* *activity: International mobility activities aimed at promotion of the adoption of good practice, exchange of information,*

[70] Only part of the indicated financing applies to implementation of the activity information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

				development of cooperation and participation in the joint European education and employment processes Target group - teachers of the vocational education competence centre (VECC) and other vocational education institutions; representatives of the fields; activity: Improvement of practical skills at the work place (in cooperation with the Latvian employers), including the introduction and acquirement of technological innovations aimed at the provision of modern practice opportunities - 1200 teachers and practice supervisors; activity: Development of educational programmes for the improvement of lifelong learning and professional competencies of teachers, incl. maintenance, as well as administration of e-environment for the acquisition of the programmes

1.13. Improvement of the small rural school and activity network, incl. acquisition of ICT	The 4th quarter of 2020	MoES	Local governments	LVL 11 764 706 (incl. ERDF financing LVL 10 000 000 and national co-financing LVL 1 764 706) *A task of NDP 2020 "Definition and implementation of a basket of public services for different levels of settlement: (a) services in national and regional development centres (9+21); (b) services in rural territories (outside national and regional development centres)"(Paragraph 417), activity: Small rural schools, optimisation of educational institutions*
Action direction to reach the goal	**2. Widely available access to the Internet**			
2.1. Development of the next generation network for rural areas	The 4th quarter of 2018	MoT	LVRTC	LVL 65 000 000[71] (incl. ERDF financing LVL 31 000 000, private co-financing LVL 9 700 000, the necessary additional financing of the State budget LVL 24 300 000) *A task of NDP 2020 "Ensuring access to high-speed and ultra high-speed data transmission networks in the entire territory of Latvia" (Paragraph 414), activity: Development of the next generation network for rural areas*
2.2. Broadband infrastructure	The 4th quarter of	MoT	Electronic communications	LVL 36 000 000 (incl. the necessary additional financing of

[71] In addition to the ERDF planning period of 2007-2013 implementation of the 1st round of the activity is continued (ERDF financing LVL 16 200 000, private co-financing LVL 2 400 000) information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

development – establishment of the last mile connection	2020		merchants	the State budget LVL 30 600 000 and private co-financing LVL 5 400 000) *A task of NDP 2020 "Ensuring access to high-speed and ultra high-speed data transmission networks in the entire territory of Latvia" (Paragraph 414), activity: Broadband infrastructure – last mile connection*
2.3. Making assessment of the necessity to improve the existing electronic communications networks	The 1st quarter of 2018	MoT	-	Within the framework of the allocated State budget.
2.4. Mapping of the current electronic communications network infrastructure	The 2nd quarter of 2018	MoT	-	LVL 2 400 000 (the necessary additional financing of the State budget LVL)
Action direction to reach the goal	**3. Modern and efficient public administration 4. E-services and digital content for society 5. Cross-border cooperation for the digital single market**			
3.1. Development of public administration ICT centralised platforms	The 4th quarter of 2020	MEPRD	all ministries	LVL 25 035 294 (incl. ERDF financing LVL 21 280 000 and national co-financing LVL 3 755 294) *A task of NDP 2020 "Ensuring the optimisation and accessibility of public services (digitalisation capabilities, transfer of customer service functions to customer service centres ("development agencies") according to the principle of a "one stop agency", based on the results of the assessment of the public services provided by the state administration" (Paragraph 418), activity: Development of public administration ICT centralised platforms*
3.2. Electronisation of public administration services	The 4th quarter of 2020	MEPRD	all ministries, local governments	LVL 76 258 824 (incl. ERDF financing LVL 64 820 000 and national co-financing LVL 11 438 824) *A task of NDP 2020 "Development of digital content and other products and e-services, thus expanding the accessibility and possibilities of use of such services in economic activity; improvement of the e-skills of the population" (Paragraph 415), activity: Electronisation of public administration services and digitalisation of information resources, their availability in the digital media by also ensuring public access to the Internet*

3.3. Introduction of the State administration human resource management system based on the e-government principles	The 4th quarter of 2020	SC	Latvian School of Public Administration, KNAB, all ministries	LVL 6 670 600[72] (incl. ESF financing LVL 5 670 000 and national co-financing LVL 1 000 600) *A task of NDP 2020 "Methodical, comprehensive and sound development of human resources and state-provided services by ensuring the improvement of the necessary competencies and cooperation mechanisms aimed at the improvement of the efficiency and quality of public administration; improvement of the quality of regulatory enactments and testing of provisions to prevent the imposition of inadequately strict requirements and their adoption into the national legislation, thus reducing the administrative burden as much as possible" (Paragraph 154), activity: Development of the training system and implementation of the State administration human resource capacity strengthening/ competence development activities including the issues on working out and application of the regulatory enactments, prevention of the administrative burden – (Better regulation policy), prevention of corruption risks and promotion of competitiveness. Introduction of the State administration human resource management system based on the e-government principles*
3.4. Introduction of the electronic auction	The 4th quarter of 2020	MoT	IA, CA	LVL 1 000 000 (incl. ERDF financing LVL 700 000 and national co-financing LVL 300 000) *A task of NDP 2020 "Improvement of the operation and processes and capacity-building of the court system and law enforcement institutions (State Prosecutor's Office, CPCB), including ensuring the creation of a business- and investment-friendly judicial environment in Latvia. Improvement of the material provision and analytical base of investigative and operational institutions, facilitation of the capacity for international collaboration", (Paragraph 158) activity: To introduce the electronic auction model in the insolvency proceedings by ensuring satisfaction of the plaintiffs and creditor's interests as completely as possible*
3.5. Development of a single IT platform by updating patent,	The 4th quarter of 2020	MoT	Patent Office	LVL 800 000 (incl. ERDF financing LVL 570 000 and national co-financing LVL 230

[72] Only part of the indicated financing applies to implementation of the activity information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

trademark and design sample registration and data processing systems				000) *A task of NDP 2020 "Improvement of the system for the protection of intellectual property rights" (Paragraph 160), activity: Development of a single IT platform by updating patent, trademark and design sample registration and data processing systems*
3.6. Introduction of the labour market forecasting system	The 4th quarter of 2018	MoW	MoE, MoES, MoH, social partners, NGO	LVL 764 706 (incl. ERDF financing LVL 650 000 and national co-financing LVL 114 706) *A task of NDP 2020 "Implementation of preemptive changes in the labour market and development of an employment barometer (a tool that monitors trends in the labour market and forecasts developments based on analysis of the dynamics of supply and demand in the labour market))" (Paragraph 246), activity: Introduction of the labour market forecasting system*
3.7. Work efficiency improvement of inpatient health care institutions – to improve the payment system for the health care system services	The 4th quarter of 2020	MoH	Local governments, NGO, social partners	LVL 3 000 000 (incl. ERDF financing 2 550 000 and national co-financing LVL 450 000) *A task of NDP 2020 "Improvement of the quality of healthcare services, planning and coordination thereof: (a) implementation of further education programmes for healthcare professionals and support staff; (b) development of a care network for cardiovascular, oncological, mental illness and perinatal care (including the development of patient flow guidelines); (c) improvement of the payment system for services; (d) assessment and improvement of the operations of healthcare institutions" (Paragraph 313), activity: Work efficiency improvement of inpatient health care institutions – To improve the payment system for health care system services*
3.8. Quality improvement of a disability expertise service	The 4th quarter of 2020	MoW	MoH, local governments, NGO, social partners	LVL 505 882 (incl. ERDF financing LVL 430 000 and national co-financing LVL 75 882) *A task of NDP 2020 "Measures of medical and social rehabilitation maintaining and restoring working ability, including for persons after accidents, illness and injuries at work" (Paragraph 314), activity: Quality improvement of a disability expertise service*
3.9. Online psychologist	The 4th	MoW	SIPCR	LVL 120 000 (additional State

interactive consultations for children in crisis situations in the e-environment	quarter of 2020			budget financing)[73]
3.10. To perform continuous and regular public involvement activities both with the leaders of the NGO sector, as well as leaders of the point of view by focusing on *web* 2.0 solutions	The 4th quarter of 2020	SC	all ministries, local governments, social partners, NGO	LVL 300 000 (within the framework of the allocated and additional financing of the State budget[74]) *A task of NDP 2020 "Promoting high quality civic participation and communication by public administration bodies with the public on issues affecting people the most" (Paragraph 338), activity: To perform continuous and regular public involvement activities both with the leaders of the NGO sector, as well as leaders of the point of view by focusing on web 2.0 solutions*
3.11. Functionality improvement of the research and publication database	The 4th quarter of 2014	CSCC	-	LVL 11 800 (the financing of the State budget is allocated[75])
3.12. Development of an integrated database for the aggregation of climate change and air quality data and report preparation for different international institutions	The 4th quarter of 2015	MEPRD	LEGMC, LLU, LSFS "Silava", IPE	Within the framework of the programme LV02 "National Climate Policy" of the EEA financial mechanism for 2009 - 2014
3.13. Development of the model system for the assessment of climate change reduction policy	The 4th quarter of 2015	MEPRD	LEGMC, LLU, LSFS "Silava", IPE	Within the framework of the programme LV02 "National Climate Policy" of the EEA financial mechanism for 2009 - 2014
3.14. Development of the climate change and adaptation portal	The 4th quarter of 2015	MEPRD	-	Within the framework of the programme LV02 "National Climate Policy" of the EEA financial mechanism for 2009 - 2014
3.15. Development of the information system about the areas subjected to the risk of flood risk for the Gauja, Lielupe and	The 4th quarter of 2014	MEPRD	-	Within the framework of the programme LV02 "National Climate Policy" of the EEA financial mechanism for 2009 - 2014

[73] Implementation of the activity will be possible if development of the technical solution is supported within the framework of Task 3.2 "Electronisation of public administration services"
[74] State budget financing allocated the amount of LVL 13 360 in 2014, LVL 17 360 in 2015, LVL 17 360 in 2016
[75] LVL 5 900 in 2015, LVL 5 900 in 2016

Venta river basin district				
3.16. Efficient e-services and systems in the field of law	The 4th quarter of 2020	MoJ	SLS, CA (LR), RE, DSI, IA, SFSB[76]	LVL 7 000 000 (incl. ERDF financing LVL 5 950 000 and national co-financing LVL 1 050 000) *A task of NDP 2020 "Reduction of the administrative burden on businesses by simplifying administrative requirements and eliminating overlapping, which includes introducing the principle of one stop agencies for services, by using modern technologies for the provision of remote services" (Paragraph 155), activity: Development of e-services and modernisation of IS activity in the State Land Service, Register of Enterprises, Court Administration (State Unified Computerised Land Register), Insolvency Administration and Data State Inspectorate. To introduce and improve IT solutions in the law enforcement institutions and IA by optimising the case conducting procedure and ensuring satisfaction of the interests of plaintiffs and creditors as completely as possible*
3.17. Digitisation of the cultural heritage	The 4th quarter of 2020	MoC	NLL, CISC, MoC	LVL 11 764 706 (incl. ERDF financing LVL 10 000 000 and national co-financing LVL 1 764 706) *A task of NDP 2020 "Development of digital content and other products and e-services, thus expanding the accessibility and possibilities of use of such services in economic activity; improvement of the e-skills of the population" (Paragraph 415), activity: Digital documenting and digitisation of the tangible and intangible cultural heritage of Latvia, storage, preservation, maintenance, accessibility of the digital content and development of new products*
3.18. Adjustment of the information systems of libraries, archives and museums in order to ensure the introduction of European Parliament Directive 2013/37/EU	The 4th quarter of 2017	MoC	NLL, CISC, MoC	LVL 1 750 000 (the necessary additional State budget financing)
3.19. Development and maintenance of the	The 4th quarter of	MoC	NLL, CISC, MoC	LVL 3 000 000 LVL (the necessary additional State budget

[76] The institutions involved in the implementation of the task are mentioned indicatively. The list of the particular institutions will be included in the Regulation of the Cabinet of Ministers regarding the respective and specific purpose of support of the EU Structural Funds' Operational Programme "Growth and Employment" information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

digital cultural heritage competence network	2020			financing)
3.20. Improvement of the machine translation system	The 4th quarter of 2020	MoC	CISC	LVL 4 000 000 (incl. ERDF financing LVL 3 400 000 and national co-financing LVL 600 000) *A task of NDP 2020 " Development of language technologies" (Paragraph 188), activity: Improvement of the machine translation system*
3.21. Development of the common use ICT organisation for the introduction of the organisational model of the State ICT management	The 4th quarter of 2020	MEPRD	SRDA	LVL 1 487 022 (the necessary additional State budget financing)
Action direction to reach the goal	**6. ICT research and innovations**			
6.1. Support for the conducting of applied research with science commercialisation potential (incl. development of the national language corpus)	The 4th quarter of 2020	MoES	MoE, MoA, MoC, MoH, MEPRD, scientific institutions recorded in the register of scientific institutions	32 500 000 LVL[77] (incl. ERDF financing LVL 24 375 000, national co-financing LVL 625 000 and private co-financing LVL 7 500 000 *A task of NDP 2020 "Implementation of fundamental and applied research projects, particularly in the priority research fields (including innovative materials and technologies, sustainable use of local resources, Latvian studies and national identity, energy and the environment, public health) and with results suitable for commercialisation; national-level modernisation of the infrastructure and strengthening of the human resources of research and technology transfer" (Paragraph 183), activity: Support for the conducting of applied research with science commercialisation potential (LVL 30 000 000)* *A task of NDP 2020 "Creation of a state-of-the-art and coordinated system for the acquisition of the Latvian language for children and adults that encourages the use of Latvian in public" (Paragraph 343), activity: National language corpus /Latvian in Europe (LVL 2 500 000)*

[77] Only part of the indicated financing applies to implementation of the activity information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

6.2. Support for the development of new products and technologies	The 4th quarter of 2020	MoE	LIAA	LVL 124 000 000[78] (incl. ERDF financing LVL 62 000 000 and private co-financing 62 000 000) *A task of NDP 2020 "Attain more efficient collaboration between the science and industrial sectors by improving the existing, and creating new forms of long-term partnership between researchers and companies, by establishing a uniform system for the transfer of research results, including improvement and development of the innovation support infrastructure" (Paragraph 186), activity: Support for the development of new products and technologies, including for the protection and commercialisation of industrial property, development of a uniform technology transfer system (including the development of a regional smart specialisation and innovations' platform)*
Action direction to reach the goal	**7. Trust and safety**			
7.1. Development of the Latvian centralised ICT safety and prevention platform	The 4th quarter of 2016	MoD/ CERT.LV	State administrative institutions	LVL 515 530 (State budget financing is allocated[79])
7.2. Provision of the electronic reporting line on violations on the Internet[80]	The 4th quarter of 2020	MoD / CERT.LV	LIA	LVL 184 200 (the necessary additional State budget financing)
7.3. Improvement of public knowledge about ICT safety aspects	The 4th quarter of 2020	MEPRD	MoD, CERT.LV	LVL 4 035 294[81] (incl. ERDF financing LVL 3 430 000 and national co-financing LVL 605 294) *A task of NDP 2020 "Development of digital content and other products and e-services, thus expanding the accessibility and possibilities of use of such services in economic activity; improvement of the e-skills of the population" (Paragraph 415), activity: Improvement of e-skills of the population*
7.4. Public awareness about safety on the Internet – the potential risks and threats[82]	The 4th quarter of 2020	MEPRD	MoD /CERT.LV, MoW, SIPCR, LIA	LVL 208 200 (the necessary additional State budget financing)

[78] Only part of the indicated financing applies to implementation of the activity
[79] Financing in the amount of LVL 695 530 has been allocated for the new policy initiative "Strengthening of State Cyber-Safety" in the framework of which the financing planned for the task constituted LVL 129 785 in 2014, LVL 161 388 in 2015 and LVL 224 357 in 2016
[80] The task shall be reviewed in relation to the draft Information Technology Safety Strategy for 2013 -2018
[81] Only part of the indicated financing applies to implementation of the activity
[82] The task shall be reviewed in relation to the draft Information Technology Safety Strategy for 2013 -2018
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7.5. Provision of SIPCR children and youth trust phone line 116 111[83]	The 4th quarter of 2020	MoW	SIPCR	LVL 220 200 (the necessary additional State budget financing)
7.6. Public awareness about safety of the personal data processing in the Internet environment (informative booklets, seminars, discussions, etc.)	The 4th quarter of 2020	MoJ	DSI, MEPRD, CERT.LV	LVL 53 400 (the necessary additional State budget financing)
7.7. Informing State administrative institutions about the necessity to ensure personal data processing safety in the Internet environment	The 4th quarter of 2020	MoJ	DSI, MEPRD, CERT.LV	LVL 12 000 (the necessary additional State budget financing)
7.8. Monitoring of implementation and the provision of high level protection activities by IS managers dealing with personal data	The 4th quarter of 2020	DSI	-	LVL 629 778 (the necessary additional State budget financing)
7.9. Modernisation of the 112 call platform and integration in the e-service environment	The 4th quarter of 2020	MoI	MEPRD	LVL 8 800 000 (incl. ERDF financing LVL 7 480 000 and national co-financing LVL 1 320 000) *A task of NDP 2020 "Development of digital content and other products and e-services, thus expanding the accessibility and possibilities of use of such services in economic activity; improvement of the e-skills of the population" (Paragraph 415), activity: Modernisation of the 112 call platform and integration in the e-service environment*

Implementation

The gained technological potential and work experience will be used in the implementation of guidelines; given that public institutions are providers of several national level IS, which are developed and maintained by highly skilled ICT professionals. Professionals with vast experience are also available in the field of ICT, as well as professionals, which have gained experience in ICT project implementation. For most of the planned activities, developers can obtain not only highly skilled experts, but also technological capabilities, as well as the successful collaboration with third-party developers – the ICT sector companies have obtained a wide range of professional experience in the development and improvement of SIS and e-services. Overall, the implementation of the guidelines is possible using the existing human resource capacity,

[83] The task shall be reviewed in relation to the draft Information Technology Safety Strategy for 2013 -2018 information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

however, if necessary, activity promoters additionally are ready to train and attract competent experts. Successful implementation of the activities included in guidelines' implementation plan will be provided by their development according to feasibility study and the expected cost-benefit analysis.

Activities that are planned to be implemented according to guidelines implementation plan have different launch, implementation and completion deadlines according to the specific need of activity and moment and amount of funding, but they are planned to be implemented during the period from 2014 to 2020 (up to 2022 – the activities that will be implemented with the framework of EU Structural funds).

It should be noted that the amount of funding will affect feasibility and scale of all proposed initiatives. In addition to this, funding shortages may affect e-governance project management, as well as the low salaries of ICT employees in public administration, in comparison with the private sector, can create drain of competent ICT workers. On the other hand, the preparation of EU Structural funding reception documentation and contestation of procurement results may delay the implementation of planned activity.

7. Financial Impact

Implementation of guidelines will be managed by the state budget, as well as attracting the EU Structural funds and private funding. For the funding of the support directions set out in the guidelines, funding of other financial sources may be attracted. In the long-term, the implementation of operational process optimisation and restructuring determined in the guidelines will facilitate more useful and effective use of state budget funds for the development of the ICT sector, at the same time improving the efficiency of operational processes, the quality of public service delivery and availability; thus, enhancing the overall quality of life in society.

Given that the EU Structural funds for the implementation of the guidelines have not yet been confirmed, there is a risk that the measures for which funding is not granted, will not be implemented; thus, inhibiting single and horizontal development of information society in the country.

Impact of the policy planning document on State and local government budgets

	The following three years (LVL)		
	2014	**2015**	**2016**
Total changes in budgetary revenue, incl.:	0	0	0
Changes in State budget revenue	0	0	0
Changes in local government budget revenue	0	0	0
Total changes in budget expenditure, incl.:	0	1 696 075	2 859 745
Changes in State budget expenditure	0	1 696 075	2 859 745
Changes in local government budget expenditure	0	0	0

Total financial impact:	0	- 1 696 075	- 2 859 745
Financial impact on the State budget	0	- 1 696 075	- 2 859 745
Financial impact on the local government budget	0	0	0
Changes in budget expenditure in 2017 - 2019	**In 2017 –** 15 052 725	**In 2018 –** 18 102 725	**In 2019 –** 13 752 725 **In 2020 –** 13 752 725
Detailed calculation of income and expenses (upon necessity the detailed calculation of income and expenses shall be attached to the appendix of the policy planning document. The impact on State and local government budgets shall be specified separately for the State and local government budget)	The table includes only the calculated State budget financing necessary for the tasks for implementation of the basic State functions (indicative), because it is not possible to determine the precise amount of necessary additional financing now. A detailed calculation of the amount of necessary additional financing will be provided to the ministries upon submitting the new request for the policy initiatives for the respective year. The decision on the State budget financing for 2014 – 2020 necessary for execution of the tasks of the action directions of the rest of the guidelines shall be reviewed by the Cabinet of Ministers during preparation of the draft law on the State budget for the current year. Taking into account that during the coordination of the guidelines the negotiations with the European Commission still continue regarding the distribution of EU Structural Funds' financing available to Latvia (accordingly, the specified EU Structural Funds' financing sums are indicative), the amount and breakdown by years of the financing allocated for the tasks which are planned to be financed from the resources of the EU Structural Funds will be determined in the EU Structural Funds' planning documents. The State budget financing identified during the development of the guidelines and necessary for the activities for implementation of the basic State functions is shown in Table 5.		

Table 5

Indicative calculation of the necessary State budget financing by years (LVL)

Activity (responsible institution)	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**
2.1. Development of the next generation network for rural areas (MoT)	0	0	0	12150000	12150000	0	0	**24 300 000**

2.2. Broadband infrastructure development – making the last mile connection (MoT)	0	0	0	0	5000000	12800000	12800000	**30 600 000**
2.3. Mapping of the current electronic communications network infrastructure (MoT)	0	0	800000	1600000	0	0	0	**2 400 000**
3.9. Online psychologist interactive consultations for children in crisis situations in the e-environment (MoW)	0	0	0	30000	30000	30000	30000	**120 000**
3.10. To perform continuous and regular public involvement activities both with the leaders of the NGO sector, as well as leaders of the point of view by focusing on *web* 2.0 solutions (SC)	0	0	0	62980	62980	62980	62980	**251 920**
3.18. Adjustment of the information systems of libraries, archives and museums in order to ensure the introduction of European Parliament Directive 2013/37/ES (MoC)	0	600000	800000	350000	0	0	0	**1 750 000**
3.19. Development and	0	600000	800000	400000	400000	400000	400000	**3 000 000**

maintenance of the digital cultural heritage competence network (MoC)								
3.21. Development of the common use ICT organisation for the introduction of the organisational model of the State ICT management (MEPRD)	0	278112	241782	241782	241782	241782	241782	**1 487 022**
7.2. Provision of the electronic reporting line on violations on the Internet (MoD)	0	30700[84]	30700	30700	30700	30700	30700	**184 200**
7.4. Public awareness about safety on the Internet – the potential risks and threats (MEPRD)	0	34700	34700	34700	34700	34700	34700	**208 200**
7.5. Provision of SIPCR children and youth trust phone line (MoW)	0	36700	36700	36700	36700	36700	36700	**220 200**
7.6. Public awareness about the safety of the personal data processing in the Internet environment (informative booklets, seminars, discussions, etc.) (MoJ)	0	8900[85]	8900	8900	8900	8900	8900	**53 400**

[84] Here and in the following years a salary for the reporting line operator, membership fee in the International Association of Internet Hotlines (INHOPE), training and exchange of experience, maintenance of the report database

[85] Here and in the following years 2 booklets (4000 copies) – LVL 6900, 2 seminars – LVL 2000 information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

7.7. Informing the State administrative institutions about the necessity to ensure personal data processing safety in the Internet environment (MoJ)	0	2000[86]	2000	2000	2000	2000	2000	**12 000**
7.8. Monitoring of implementation and provision of high level protection activities by IS managers dealing with personal data (DSI)	0	104963[87]	104963	104963	104963	104963	104963	**629 778**
Total	**0**	**1696075**	**2859745**	**15052725**	**18102725**	**13752725**	**13752725**	**65 216 720**

8. Reporting and assessment procedure

Assessment of the implementation of the Guidelines takes place in the middle stage or final stage of the validity period of the Guidelines. MEPRD shall prepare and submit the following informative reports to the CM on the implementation of the Guidelines according to a definite procedure:

- a progress assessment of the implementation of the Guidelines – until 31 May 2017 and 31 May 2019;
- the final report on implementation of the Guidelines by including proposals for information society development in the following years – up to 1 July 2021.

Upon necessity MEPRD will prepare amendments to the Guidelines.

9. Policy planning documents to be declared as void

Along with the approval of the Guidelines the following development planning documents shall become void:

- Information Society Development Guidelines 2006 - 2013 (approved by Order No. 542 of the CM of 19 July 2006 "On the Information Society Development Guidelines 2006 - 2013");
- Electronic Government Development Plan for 2011 - 2013 (approved by Order No. 218 of the CM of 25 May 2011 "On the Electronic Government Development Plan for 2011 - 2013");
- Development Plan of Electronic Skills for 2011 - 2013 (approved by Order No. 207 of the CM of 18 May 2011 "On the Development Plan of Electronic Skills for 2011 - 2013");

[86] Here and in the following years 2 seminars for State administrative institutions

[87] Here and in the following years remuneration for 10 employees (Head of the Structural Unit, 9 employees) – LVL 104963

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- Improvement Plan of the Use of the Electronic Procurement System for 2010 -2012 (approved by Order No. 231 of the CM of 22 April 2010 "On the Improvement Plan of the Use of the Electronic Procurement System for 2010 -2012").

Minister of Environmental Protection
and Regional Development Edmunds Sprudzs */Edmunds Sprūdžs/*

Appendix 1

Final Impact Assessment of the Development Planning Period of 2006 -2013

This report includes a uniform final impact assessment of the implementation of the Information Society Development Guidelines 2006 - 2013[88], Electronic Government Development Plan for 2011 - 2013[89], Development Plan of Electronic Skills for 2011 - 2013 (approved by Order No. 207 of the CM of 18 May 2011 "On the Development Plan of Electronic Skills for 2011 - 2013") and the Improvement Plan of the Use of the Electronic Procurement System for 2010 -2012[90].

The report is worked out in accordance with Paragraph 45 of Regulation No. 1178 of the CM of 13 October 2009 "Assessment Regulations of Elaboration and Impact of the Development Planning Document" about the preparation of the assessment of the final impact of the planning document.

The information has been prepared pursuant to the information possessed by MEPR, as well as according to the information provided by the ministries responsible and involved in the execution of the tasks included in the Guideline. The report is prepared according to the terms set for the implementation of the activities included in the aforementioned planning documents.

Information Society Development Guidelines 2006 - 2013

The Information Society Development Guidelines 2006 - 2013 were worked out with a purpose to describe the situation, as well as the goals and tasks to be performed in order to introduce the EU and UN information society initiatives in Latvia and the initiatives related to achievement of the goals set in the National Development Plan 2007 - 2013 in the field of information society, and especially regarding skills, technologies, services, innovation, research and business activity. Upon taking into account the goal of the Guidelines, medium-term policy planning documents and concepts were worked out for its achievement, activities for the solution of particular tasks were planned and implemented, priorities were set for planning the financing of different sources, as well as for the preparation of the new policy initiatives.

In 2006 Latvia considerably lagged behind the EU in terms of the number of Internet users (2 times less), use of ICT in business activity (2.3 times less), use of e-services (7-10 times less), as well as in terms of e-commerce turnover (16 times less). The science and research related to ICT and the introduction of innovative solutions in business activity were relatively inactive. The ICT sector of Latvia constituted 6% of the GDP, while the ICT sector of the EU was 1/3 larger.

The main causes of these problems were:

- **insufficient Internet access infrastructure coverage,** especially in rural areas, which affected the proportion of users between physical and legal persons and slow development of the content and services;
- **computers and Internet financially inaccessible for households**, especially in the regions and the population having middle and low income;

[88] Approved by Order No. 542 of the CM of 19 July 2006 "On the Information Society Development Guidelines 2006 - 2013"

[89] Approved by Order No. 218 of the CM of 25 May 2011 "On the Electronic Government Development Plan for 2011 - 2013"

[90] Approved by Order No. 231 of the CM of 22 April 2010 "On the Improvement Plan of the Use of the Electronic Procurement System for 2010 -2012"

- **insufficient computer and Internet usage skills**, technology and service usage skills and information literacy, especially in the regions and population groups subjected to the risk of social exclusion;
- **insufficient amount of online services and content**. The small number of State administration electronic services, as well as commercial and e-commerce services. The small amount of services did not promote the necessity of the users making transactions in electronic media and developing ICT usage skills. Thereby, the growth of investments was not promoted, neither for integration on the ICT based innovations in enterprises, nor for the development of comprehensive services;
- **insufficient usage of ICT and the ICT based innovations in business activity**. Insufficient usage of computers, Internet and other ICT opportunities in business activity, especially in the manufacturing and creation of new products. The lack of financial resources for the use of computers and Internet in SMEs, as well as inadequate skills of the labour force;
- **insufficient resources for the ICT sector and manufacturing of the knowledge export products** – there was a lack of financial resources for the creation of innovative and competitive products, as well as the resources and skills for marketing in the international market.

In accordance with the policy results and performance indicators of the Information Society Development Guidelines 2006 - 2013 it was envisaged that within the long term, due to the implemented policy:

- individual usage of the Internet and computers and their usage in enterprises would considerably increase, the range and use of the online information and services would grow, the amount of innovations in economics would also increase, particularly in the fields related to ICT and their use;
- usage of ICT in business activity would promote the increase of production process efficiency and competitiveness and the creation of innovative products of higher added value. Different e-services, especially State administrative services will allow the entrepreneurs to use the time and resources more efficiently, as well as provide new opportunities for the creation and sale of products by developing regional business activity, as well. Accessibility of the digital content would promote education, culture and research development;
- the online services would provide a possibility for the population to improve the quality of life by accessing the information, knowledge and cultural resources, possibilities to make transactions in the electronic media (e-commerce) and possibilities to use e-health and e-education services. The usage of ICT would allow the inclusion of the population groups subjected to the social exclusion risk in society;
- along with the increasing demand the ICT sector would develop which would make a considerable contribution to the growth of the GDP – the ICT sector of the EU constitutes 8% of the GDP and provides 25% of its growth, while the ICT sector of the USA constitutes 10% and provides 40% of the GDP (*Eurostat* data).

Upon implementing the Guidelines within the period from 2006 to 2013 it was planned to increase:

- the proportion of population who use the Internet on a regular basis from 36% in 2005 to 70% in 2013, incl. in the rural areas from 15% in 2005 to 60% in 2013;
- the proportion of households having a broadband Internet connection – from 15% in 2005 to 59% in 2013;
- the proportion of employees using a computer and the Internet on a daily basis – from 16% in 2005 to 55% in 2013;

- the proportion of the ICT sector in the GDP – from 6% in 2005 to 9% in 2013;
- the proportion of enterprises which make e-government transactions – from 3% in 2005 to 40% in 2013;
- the proportion of the population who use distance education services – from 9% in 2005 to 25% in 2013;
- the proportion of the population who make e-health transactions – from 9% in 2005 to 25% in 2013;
- the company turnover from selling on the Internet – up to 15% in 2013;
- the proportion of the population who shop on the Internet - from 3% in 2005 to 35% in 2013.

All sectoral ministries were involved in the implementation of the Guidelines according to the field of their competence in the implementation of the activities of the Guidelines. The implementation activities of the Guidelines were orientated on wide society – population, merchants, pupils, teachers, students, teaching staff of higher educational institutions, scientists , entrepreneurs of the ICT field, disabled persons, unemployed persons, elderly people, population groups subjected to the risk of social exclusion, etc.

Taking into account that the achievement of the goals set in the Guidelines is ensured by introducing planning documents of several sectors, the Guidelines for Electronic Communications Sectoral Policy of the Republic of Latvia 2004 - 2008 (Order No. 154 of the CM of 9 March 2004 "On the Guidelines for Electronic Communications Sectoral Policy of the Republic of Latvia 2004 - 2008"), Concept "Broadband Network Development Strategy 2006 - 2012" (Order No. 839 of the CM of 27 December 2005 "On the Concept "Broadband Network Development Strategy 2006 - 2012""), the Guidelines "e-Health in Latvia" (Order No. 560 of the CM of 17 August 2005 "On the Guidelines "e-Health in Latvia""), Concept "Development of the Client-orientated Service Provision System in the Ministry of Agriculture and its Subordinated Institutions" (Order No. 126 of the CM of 20 February 2009 "On the Concept "Development of the Client-orientated Service Provision System in the Ministry of Agriculture and its Subordinated Institutions""), Latvian Geospatial Information Development Concept (Order No. 718 of 20 November 2007 of the CM "On the Latvian Geospatial Information Development Concept"), Concept "Concept on the Development of a Geospatial Information Portal (Order No. 737 of 27 November 2007 of the CM "On the Concept "On the Development of a Uniform Geospatial Information Portal""), Electronic Procurement System Concept (Order No. 650 of the CM of 5 October 2005 "On the Concept "Electronic Procurement System""), the Guidelines for Electronic Communications Sectoral Policy of the Republic of Latvia 2011 - 2016 (Order No. 151 of the CM of 13 April 2011 "On the Guidelines for Electronic Communications Sectoral Policy of the Republic of Latvia 2011 – 2016") should be mentioned as the most important planning documents.

The Guidelines are also implemented by means of the Electronic Government Development Programme 2005 - 2009 (Order No. 623 of the CM of 29 September 2005 "On the Electronic Government Development Programme 2005 – 2006") due to the implementation of which the electronic government base infrastructure has been developed, new State information systems have been improved and established, State registers integrated, State administrative services improved by means of ICT, local government information systems developed, as well as the Education system informatisation programme "Information and Communication Technologies for Education Quality 2007 - 2013" (Order No. 812 of the CM of 20 October 2006 "On the Programme "Information and Communication Technologies for Education Quality 2007 - 2013"") within the framework of which the education information system has been developed, maintenance of education registers and their integration with other national registers ensured, e-

cooperation environment established, education informatisation planning, management and supervision performed, as well as ICT infrastructure modernised and maintained and the provision of educational institutions improved.

On the other hand, upon introducing the Improvement Plan of the Use of the Electronic Procurement System 2010 - 2012, the Electronic Procurement System has been developed by making a centralised procurement of medicinal products, the acquisition of standard software ensured and the use of the Electronic Procurement System determined as obligatory for individual customers when buying particular types of goods. Within the framework of the Electronic Government Development Plan 2011 – 2013 information systems and about 200 electronic services have been developed. Within the framework of the Electronic Skills Development Plan 2011 – 2013 the general understanding and motivation of the necessity of the electronic skills and training have been promoted, as well as training electronic skills to the target groups included in the plan ensured. Consultants who work with the target groups subjected to risk have been trained, consultants have been trained for the use of the existing and new e-services, the unemployed have been trained and learning materials created for the users of the e-government systems and service providers and organisation of the activities of the EU week of e-skills have been ensured at the national level.

The introduction activities of the Guidelines have been performed with considerable support of the EU Structural Funds by introducing Subactivity 3.2.2.1.1 "Development of Information Systems and Electronic Services" of the Operational Programme "Infrastructure and Services", as well as financed by the funds of the State and local government budget, private financing and foreign financial sources.

Upon evaluating the implementation performance indicators of the Guidelines of the development planning period of 2006 -2013, it may be concluded that in six of ten of the planned indicators the value to be achieved by the end of 2013 was already reached in 2010 - 2012 (see Table 1).

Table 1

Achieved performance indicators in 2005 - 2013

	2005	**2009**	**2010**	**2011**	**2012**	**2013**
Regular users of the Internet, private persons (%) - planned	36	50	55	60	65	70
Regular users of the Internet, private persons (%) - actual	35	61	62	66	70	-
Regular users of the Internet, private persons (%) – EU average	43	61	65	68	69	-
Inhabitants who shop on the Internet (%) - planned	3	20	24	28	32	35
Inhabitants who shop on the Internet (%) - actual	5	19	17	20	27	-
Inhabitants who shop on the Internet (%) - EU average	24	37	40	43	44	-

On the other hand, due to a lack of appropriate statistical data, it is not possible to evaluate the indicator "proportion of the population who make e-health transactions". The *Eurostat*

indicator to be applied is the proportion of inhabitants who use the Internet for searching for information related to health, in which Latvia lagged behind the EU average indicator in 2007 by 13 percentage points, but in 2011 it reached the average level of the EU. It must be concluded that the increase of the ICT field in the gross domestic product is forecasted too optimistically until 2013 by planning that it will reach the level of 9%. In accordance with the data of the Central Statistical Bureau its actual value in Latvia in 2011 reached 3.3% of GDP, experiencing an annual fall since 2008 in the amount of 0.1 percentage point, while the average EU indicator of the same year reached the level of 5% (pursuant to the *Eurostat* data). Lagging behind is also observed in the indicator "turnover from selling on the Internet" and the indicator "proportion of inhabitants who shop on the Internet" which may be explained by the still insufficient trust of consumers and entrepreneurs in the transactions in the digital media, insufficient offer of online services and digital skills for their use.

Due to implementation of the Guidelines the members of the target groups have a wider access infrastructure, the accessibility to ICT is promoted, knowledge and skills of users are improved, services and digital content are developed, use of the ICT solutions in the business activity and innovation facilitated, ICT science and research developed and the creation of export capable ICT products and services promoted. The impact of the implementation of the Guidelines is demonstrated by a considerable improvement in the field of Latvian indicators in the information society which have reached, as well as exceeded the average EU level in the most part of the indicators.

Taking into account that the reaching of the goals set in the Guidelines has been closely related to the implementation results of the planning documents resulting from the Guidelines – "Electronic Government Development Plan 2011 - 2013, Electronic Skills Development Plan 2011 - 2013, Improvement Plan of the Use of the Electronic Procurement System 2010 – 2012", the implementation assessment of the aforementioned plans is included in detail in the implementation assessment of the Guidelines.

Electronic Government Development Plan 2011 - 2013 defined that the development of such e-government should be promoted in Latvia that would be open for society and orientated on the provision of efficient services to the population and merchants. The role of ICT was associated with the improvement of the quality of life of the population, provision of electronic accessibility and ICT skills by emphasising the development of digital skills and the development of public services orientated on the needs of the population. It was determined to provide the accessibility of public services in a convenient and easy way for the population as the goal of the plan by ensuring electronic data exchange between the State administration and local government subjects by increasing public administration efficiency and reducing its costs at the same time. On the basis of the goal of the plan the following action directions of the plan were set:

- reducing of the administrative burden and increasing the efficiency of the public administration organisational process;
- development of the electronic services meeting the needs of the population and merchants;
- infrastructure development of State information systems and information and communication technologies, promotion of Internet access;
- promotion of innovations in public administration processes.

Different activities have been performed within the framework of the plan for efficiency improvement of public administration and convenient receipt of services. Amendments to the regulatory enactments were made in order to reduce the administrative burden, and institutions were motivated not to require such information from private persons which is already possessed

by the institutions. The development of the electronic one-stop shop, as well as the introduction of the one-stop shop principle and ICT optimisation in public administration were continued. Wider use of a safe e-signature was promoted and electronic identification cards introduced. The development of the existing e-services and establishment of new e-services were continued. During the period of the plan 60 e-services were placed in the portal www.latvija.lv, which were established due to the cooperation of different State administrative and local government institutions. The common use infrastructure necessary for the provision of e-services was also developed by ensuring the development and maintenance of the respective policy and normative environment. Taking into account that the quality of the data and system compatibility in the SIS is an important quality assurance condition of public services, data exchange included in different SIS was ensured by transferring data from one system to another. Activities for data quality improvement were performed in the SIS, as well as observance of the SIS safety and technical requirements monitored.

In order to determine further action in the organisation of national ICT management, as well as the tasks, optimal organisational structure for the execution of these tasks, roles of the parties involved in national ICT management, responsibility and cooperation principles, as well as the activity plan for the introduction of the national ICT management model, the concept "Organisational Model of State Information and Communication Technology Management" was developed and approved by Order No. 57 "On the Concept "Organisational Model of the State Information and Communication Technology Management"" of the CM of 19 February 2013.

In general, the indicators set in the plan were reached and the plan may be considered as implemented. All ministries were involved in the implementation of the plan according to their field of competence in the introduction of the activities envisaged in the plan. The policies and activity results of the action directions and their performance indicators are presented in Table 2.

Table 2

Policy results and their performance indicators of the action directions

Policy results	Performance indicators	Year			
		2010	**2011**	**2012**	**2013**
The number of inhabitants participating in public administration decision making and using the electronic services provided by State and local governments by taking the opportunities provided by ICT has increased	Proportion of the population who use the Internet for cooperation with State and local government institutions, percentage of all the population	23	24	25	26
	Proportion of enterprises which use the Internet for cooperation with State and local government institutions, percentage of enterprises with a number of employees of 10 and more	60	62	64	66
Accessibility and quality of the electronic services of the State and local government institutions has increased	Accessibility of e-government, percentage	67	69	71	75
	Number of interactive electronic services available in the electronic one-stop shop – the portal www.latvija.lv	29	32	117	262

SIS compatibility is provided	Proportion of State information systems recorded in the State information system register which use the compatibility of the State information system, percentage	5	5	7	30

The plan was implemented with considerable support of EU Structural Funds by introducing Subactivity 3.2.2.1.1 "Development of Information Systems and Electronic Services" of the Operational Programme "Infrastructure and Services", as well as using State budget funds.

Electronic Skills Development Plan 2011 – 2013

In the EC Communication to the Council, European Parliament, European Economic and Social Committee and Regional Committee "Europe 2020 – Strategy for smart, sustainable and inclusive growth" (COM(2010) 2020 final edition[91]) in one of seven sample initiatives – *Digital Agenda for Europe* EU member states are invited to perform development promotion activities of e-skills. It was emphasised in the *Digital Agenda for Europe* that e-skills become an important necessity of life and inability to access or use ICT is actually an obstacle for social integration and personal development. An insufficient level of e-skills between employees is an obstacle for economic growth, competitiveness and employment in the State and the EU in general. The *Digital Agenda for Europe* suggested the implementation of a long-term policy of e-skills and usage skills of digital means to EU member states until 2011 with a purpose to motivate the SMEs and disadvantaged population groups to acquire e-skills in order to ensure the development and competitiveness of society, as well as advantages in the labour market.

In order to introduce one of the long-term action directions specified in the Guidelines – training of target groups of different inhabitants in the use of ICT (incl. training of elderly people, unemployed persons, regional population, etc.), development of the specific content necessary for the needs of these groups, public awareness about the advantages and new services provided by ICT and in order to introduce the activities mentioned in the *Digital Agenda for Europe*, the "E-skills Development Plan 2011 – 2013" was developed in Latvia and approved in 2011 (approved by Order No. 207 of the CM of 18 May 2011 "On the Electronic Skills Development Plan 2011 – 2013").

Upon developing the plan of e-skills, it was mainly based on the development coordination and promotion of the e-skills of the practical ICT user, as well as the economic situation in the country was taken into account. It was orientated on the groups of population having the highest exclusion risk, such as unemployed persons and job-seekers, population of preretirement age and pensioners, local government officials, persons living in long-term social care institutions and prisoners. Activities for target groups such as teachers, librarians – consultants, youth and children, as well as the youth subjected to the risk of social exclusion were also envisaged in the plan of e-skills.

Within the framework of the plan, by improving and developing the training skills of e-services, a section www.eiespejas.lv was included in the portal www.latvija.lv, where information materials were placed which explain to the inhabitant in a simple way how to use the electronic solutions created by the State and local government. In order to motivate the use of e-services, annual information campaigns "European E-skills Week" were organised where information and learning materials of different State and local government institutions and non-

[91] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:LV:PDFEIROPA 2020 - Stratēģija gudrai, ilgtspējīgai un integrējošai izaugsmei, COM(2010) 2020
information_society_development_guidelines_2014_2020.docx; Information Society Development Guidelines 2014-2020

governmental organisations were worked out, such as booklets and presentations, as well as video presentations about different e-services. These materials were placed in the portal provided for the European E-skills Week www.eprasmes.lv and *You Tube.*

Activities for different target audiences were organised, as well as unemployed persons, librarians – consultants, teachers and social educators trained. Local government officials were trained in the e-skills necessary while performing the work duties. Training of the work with the Electronic procurement system has been ensured. Visiting seminars were started for school teachers "E-skills for development" in which the teachers were informed about the e-opportunities offered by the State. A course of e-skills was worked out and training performed, as well as learning and information materials prepared to raise the competences of the staff of educational institutions. Different courses of e-skills were worked out and introduced in order to raise competences of the teachers of vocational education institutions, for example, courses of renewal of ICT skills and acquisition of e-environment – courses of musical computer programs and technologies, development and use of an e-training course, courses of ICT basic skills, as well as other courses. Training of the youth and children in the use of safe Internet was promoted, as well as the children and youth trust phone campaigns "Safer Internet Day" were organised.

In general, the activities included in the plan of e-skills have been implemented successfully in the period of the plan. The activities have been implemented within the framework of the existing State budget funds and the project "Father's Third Son". The successful cooperation between the State institutions, local governments and non-governmental organisations may be evaluated positively in the implementation of the activities.

Improvement Plan of the Use of the Electronic Procurement System for 2010 – 2012

In order to save State and local government funds it was necessary to promote the use and development of e-procurements which would allow the procurement process to be simplified considerably depending on the type of e-procurement used (electronic auction, electronic competition and electronic catalogue), the provision of more useful supply or provision conditions of services and the ensuring of several other advantages.

The Improvement Plan of the Use of the Electronic Procurement System (EPS) (approved by Order No. 231 of the CM of 22 April 2010 "On the Improvement Plan of the Use of the Electronic Procurement System for 2010 – 2012") was prepared in order to improve the efficiency and transparency of procurements. Within the framework of the Plan centralised procurements of medicinal products were ensured, the EPS was supplemented with the section for the purchase of the standard software. In order to develop the electronic auctions a project application was prepared and submitted, as well as proposals made for amendments to the regulatory enactments. Regulation No. 1241 of the CM of 28 December 2010 "Regulations on Centralised Electronic Procurements" were worked out and approved which envisage the cases when it is obligatory for a customer (direct administration institution) to purchase goods and services from the centralised procurement institutions or purchase them through their agency.

Upon implementing the activities of the Plan and developing the EPS, the following improvements are generally provided for their users – public administrative institutions and the State:

- transparency of the procurement process was considerably increased and corruption risk prevented. It is more complicated to conclude "hidden agreements " in the system, than purchase goods in the open market (performing a classic procurement procedure);
- rational use of State and local government funds was ensured so that the customer's staff do not have to spend time and resources for organisation of their procurement procedure. Upon performing centralisation of the procurement procedures by using the EPS,

administrative burden was reduced not only on the customer, but also on the supplier and Procurement Monitoring Bureau;

- the procurement process was made faster – the time from identifying the necessity to delivery was considerably reduced. The buyers do not have to perform procurement procedures anymore;
- free competition of suppliers was ensured within the entire period of validity of the general agreement. Upon submitting the offer the maximum price of the offer is determined but during the validity period of the agreement suppliers reduce the price of the goods because the respective purchase request is only sent to that supplier who has offered the lowest price of the respective goods at the particular moment;
- centralised procurements combine several orders due to which the lowest prices are also obtained for small procurements. Taking into account the fact that it is necessary to win an open competition in order to obtain the right to offer the goods in the e-catalogue, several suppliers agree with manufacturers or wholesalers on the discounts to be applied for the procurements in the EPS which should not be referred to the buyers having low turnover and buying the goods outside the system;
- the electronic procurement envisaged in the EC regulatory enactments was introduced and the positive experience of the EU states is used in practice.

  In general, all activities of those included in the Improvement Plan of the Use of the Electronic Procurement System and playing an important role in the saving of State and local government funds have been completely and successfully introduced within the plan period. The Plan was introduced with the considerable support of EU Structural Funds by implementing Subactivity 3.2.2.1.1 “Development of Information Systems and Electronic Services” of the Operational Programme “Infrastructure and Services” and by using State budget funds.

Minister of Environmental Protection
and Regional Development Edmunds Sprudzs */Edmunds Sprūdžs/*

Appendix 2

Linkage of the action directions of the Guidelines with the tasks to be performed

	Action direction and subdirections / Tasks	1.1. Improvement of e-skills of employees of	1.2.Training of employees organised in	1.3. Training of e-skills for unemployed	1.4. Training of e-skills for adults	1.5. Establishment of the digital text book	1.6. Development of the curriculum	1.7 Development of digital learning materials	1.8. Arrangement of the classrooms of	1.9.Support for performance of the	1.10. Ergonomic arrangement of the leraning	1.11. Improvement of the professional	1.12. Improvement of the practical skills of	1.13. Improvement of the small rural school	2.1. Development of the next generation	2.2. Broadband infrastructure development –	2.3. Working out the consideration on the	2.4. Mapping of the current electronic	3.1. Development of public administration	3.2. Electronisation of public administration	3.3. Introduction of the State administration	3.4. Introduction of the electronic auction	3.5. Development of a single IT platform by	3.6. Introduction of the labour market	3.7. Work efficiency improvement of	3.8. Quality improvement of a disability	3.9. Online psychologist interactive	3.10. To perform continuous and regular	3.11. Functionality improvement of the	3.12. Development of an integrated database	3.13. Development of the model system for	3.14. Development of the climate changes	3.15. Development of the information system	3.16. Efficient e-services and systems in the	3.17. Digitisation of the cultural heritage	3.18. Adjustment of the information systems	3.19. Development and maintenance of the	3.20. Improvement of the machine	3.21. Development of the common use ICT	6.1. Support for the conducting of applied	6.2. Support for the development of new	7.1. Development of the Latvian centralised	7.2. Provision of the electronic reporting line	7.3. Improvement of public knowledge about	7.4. Public awareness about safety on the	7.5. Provision of SIPCB children and youth	7.6. Public awareness about safety of the	7.7 Public awareness about safety of the	7.8. Monitoring of implementation and	7.9. Modernisation of the 112 call platform
5.1. ICT education and skills	5.1.1. Public awareness and readiness to use e-opportunities	X																																																			
	5.1.2. Development of inhabitant and entrepreneur e-skills	X	X	X	X					X	X			X			X								X																												
	5.1.3. Raising ICT competences of public administration	X																			X																																
	5.1.4. Preparation of ICT practitioners and professionals according to the requirements of the labour market											X	X																																								
	5.1.5. Promoting the proportion of algorithmic thinking and information literacy in educational programmes					X	X	X	X			X	X																																								
5.2. Plaši	5.2.1. Transport networks															X																																					
	5.2.2. Last mile														X																																						

	5.2.3. Grids																X																														
	5.2.4. Mapping of the current electronic communications network infrastructure																	X																													
5.3. Advanced and Effective Public	5.3.1. Process modernisation of public administration basic activities																		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X											X
	5.3.2. Public e-participation and e-democracy																											X																				
	5.3.3. Single public administration data space																		X	X		X	X	X	X	X			X	X	X	X	X	X		X	X											X
	5.3.4. Optimisation of ICT infrastructure																		X	X		X	X	X	X	X			X	X	X	X	X	X	X	X	X		X										X
5.4. E-Services and Digital Content for the Public	5.4.1. Opening of public administration data and transaction services to other users																		X	X	X		X	X	X	X			X	X	X	X	X	X	X	X	X	X										X
	5.4.2. Development of shared platforms and services for the provision of public services																		X	X		X	X				X		X	X	X	X	X			X	X	X										
	5.4.3. Introduction of official e-mail address for inhabitants and entrepreneurs																			X																											
	5.4.4. Digitalisation of public services																			X		X	X	X			X							X	X	X	X											X
	5.4.5. Automated issue and acceptance of electronic invoices																			X																											

	5.4.6. Digitalisation and availability of cultural heritage					X	X	X											X	X															X	X	X				X											
	5.4.7. Stimulation of Latvian language usage distribution in the digital environment																																					X			X											
	5.4.8. E-health solutions for efficient, safe and patient-orientated health care																		X	X					X		X																										
5.5. E-health solutions for	5.5.1. The creation of cross-border e-services and data exchange solutions																			X																																	
	5.5.2. Development of base solutions for the provision of cross-border services																			X																																	
5.6. ICT	5.6.1. ICT research																																							X													
	5.6.2. Innovation																																							X	X												
5.7. Trust and	5.7.1. ICT safety																			X																						X							X			
	5.7.2. Human security																		X	X																																X
	5.7.3. Trust in electronic environment	X																																									X	X	X	X	X	X		

Minister of Environmental Protection
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(Order No. 486 of the Cabinet of Ministers
of 14 October 2013)

Summary of the Information Society Development Guidelines 2014–2020

Information Society Development Guidelines 2014–2020 (hereinafter referred to as "Guidelines") are worked out in order to continue the current action policy in the field of information society development and determine the priorities of the field of information and communication technologies for the European Union Structural Funds planning period 2014-2020. The Guidelines are a medium term development planning document worked out by the work group for a period of seven years under the management of the Ministry of Environmental Protection and Regional Development. The work group consisted of representatives from the sectoral ministries, State Chancellery, associations of the information and communication field, Latvian National Commission for UNESCO, Latvian Chamber of Commerce and Industry, Employers' Confederation of Latvia and Latvian Association of Local and Regional Governments.

On the basis of the experience gained by implementing the Information Society Development Guidelines 2006 – 2013, as well as analysing the national level priorities, **the goal of the Guidelines** is defined: to provide a possibility for everyone to use the opportunities provided by the information and communication technologies, develop a knowledge-based economy and improve the general quality of life by making a contribution to the increase of public administration efficiency, State competitiveness, economic growth and the creation of work places.

The leading motive of the Guidelines is economic growth and work places. Each action direction of the Guidelines is orientated on raising competitiveness, economic growth and the establishment of new work places. In order to achieve this, special attention is paid in the Guidelines to the introduction of the open data principle in public administration. That includes the development potential of digital economics, undervalued up to now, by changing the information resources in the public administration whose purpose is to ensure the performance of the functions and tasks of the public administration by creating new, innovative business ideas and services capable of generating income, work places and taxes. The second issue to which special attention has been paid in the Guidelines in relation to the promotion of economic growth, is the purposeful reducing of the administrative burden by optimising basic activity processes of public administration and raising its efficiency, as well as simplifying the receipt of public services. This is ensured by the opportunities and tools of the information and communication technologies. Thereby, the administrative burden and the related costs of entrepreneurs will decrease, which will allow the resources to be concentrated for the business activity itself.

Taking into account the analysis of the situation in the field of information society and assessment of the final impact of the Information Society Development Guidelines 2006 – 2013, as well as the development plans worked out on the basis of the Guidelines, as well as the priorities set out in the European Union development planning documents in the field of information society, seven action directions are set for the policy planning period of 2014 – 2020:

1. ICT education and skills.
2. Widely available access to the Internet.

3. Modern and efficient public administration.
4. E-services and digital content for society.
5. Cross-border cooperation for the digital single market.
6. ICT research and innovation.
7. Trust and safety.

The Guidelines will be implemented from the State budget funds by also involving the resources of European Union Structural Funds and private financing. In order to finance the support directions prescribed in the Guidelines, financing of other financial sources may be used. By optimising and restructuring the administration processes envisaged in the Guidelines, more useful and efficient expenditure of State budget funds will be promoted within the long term for the development of the field of information and communication technologies.

Minister of Environmental Protection
and Regional Development Edmunds Sprudzs */Edmunds Sprūdžs/*