

# eHealth strategy and implementation activities in Latvia

Report in the framework of the eHealth ERA project

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## **eHealth ERA**

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European e-Health Research Area  
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### About eHealth ERA and this report

This report is the outcome of research in the context of the eHealth ERA project (Towards the Establishment of a European Research Area). The project is implemented by empirica GmbH (coordinating partner, Germany), STAKES (Finland), CITTRU (Poland), ISC III (Spain), CNR (Italy) as well as EPSRC and Imperial College (United Kingdom), based on a Coordination Action contract with the European Commission.

The European Commission, Directorate General Information Society and Media, supports this project to contribute towards greater transparency across Member States and other participating countries on eHealth strategies as well as innovation-oriented research and technology development (RTD) initiatives, including the coordination of Member States' eHealth strategy formulation and implementation. Thereby the project aims at fostering the establishment of an effective European Research and innovation Area (ERA) in eHealth. All project results are available on the internet and can be accessed at the eHealth ERA website: [www.ehealth-era.org](http://www.ehealth-era.org).

The status of activities described is generally August 2006.

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## **Country Report: LATVIA**

### **1 Executive Summary**

Main bodies involved in the formation of the health care landscape in Latvia include Parliament and relevant parliamentary committees, the Ministry of Health and related institutions, the Compulsory Health Insurance State Agency, professional associations and regional administration.

The Ministry of Health is the main organisation responsible for the development of national ehealth policy and plans for its implementation. The strategy of ehealth development was defined in the concept document titled “eHealth in Latvia”. It was approved by the Cabinet of Ministers of Latvia on August 17, 2005. This document will be followed by the action plan for implementation of the priorities. Specific activities related to the establishment of an ehealth environment are accompanied by broader strategies of information society development. “e-Latvia 2005-2008” is main document in this context. eHealth was enlisted as one of the priority domains apart from eGovernment, eLearning, eBusiness, Broadband access to services, and Security.

The priorities defined in the action plan “eHealth in Latvia” include establishment and implementation of an electronic Health Card and of an electronic European Health Insurance Card, implementation of Electronic Health Record by health care institutions, improvement of linkage and connection between health care institutions’ internal information systems. Electronic data exchange between stakeholders active in healthcare market was also important priority. Others activities indicated in the action plan were standardisation of health related activities and provision of health care services electronically and online, better access to health related information for society and health care professionals and finally, development of telemedicine-based services.

## 2 Basic Facts

Latvia became a member of European Union on May 1, 2004. It is situated on the eastern part of the Baltic Sea coastline. Its area is 64,589 square km and its population is about 2.3 million inhabitants. Latvians are 58% of its populations, Russians reach 29%, and other minorities include Byelorussians, Ukrainians, Poles and Lithuanians. Official language is Latvian. Main religions are Lutheranism, Roman Catholics and Russian Orthodox.

## 3 Healthcare System Overview

This section concentrates on the national health system as the backdrop and environment for eHealth RTD and implementation. The emphasis is on identifying factors with a critical impact on eHealth (such as the financing and organisational structure of the healthcare system), as well as those most likely to be affected by eHealth deployment.

### 3.1 Basic Facts and Features of the Healthcare System

#### 3.1.1 The Main Decision Making Level for Health Care Policy in Latvia

The health care system of Latvia comprises the following levels [24]:

- Policy formulation and sector administration level – the Ministry of Health is the leading public administration body in the health sector. The Ministry of Health develops sector policy documents, laws and regulations, monitors implementation of health care policy and administers the sector budget.
- Sector policy implementation level – institutions such as Health Promotion State Agency, Sports Medicine State Agency, Public Health Agency, AIDS Prevention Centre, Infectology Centre of Latvia, Health Statistics and Medical Technologies State Agency, State Blood Donors Centre, Health Compulsory Insurance State Agency, State Medicines Pricing and Reimbursement Agency, Centre of Emergency and Disaster Medicine, Mental Health Government Agency, State Agency of Tuberculosis and Lung Diseases, State Agency for Medicines, State Addiction Agency, State Agency of Sexually Transmitted and Skin Diseases, Medical Care and Working Ability Expertise Quality Control Inspection, State Pharmaceutical Inspection, State Sanitary Inspectorate as well as State Centre for Forensic Medical Examination performs certain state functions under the supervision of Ministry of Health.

- Healthcare level – different health care institutions (diagnostics, ambulatory, stationary and rehabilitation institutions) provide medical care and treatment of patients and the related services (including private insurance organizations).

The main insurance organization is Health Compulsory Insurance State Agency with 5 Territorial Departments of the Agency.[8] The funding of the state's healthcare budget consists from the state's basic budget and mainly is funded from general taxation. Taxes are collected by the State Revenue Service (institution under supervision of the Ministry of Finance). Health care is financed from the state budget resources in accordance with the annual Law "On the state budget" and programs and financial volumes fixed by this Law.

The state's healthcare budget income consists of three main components:

- general incoming tax (28,4% of income from personal income tax);
- subsidies from general state revenues;
- patients' contributions and services for charge (forms a smallest part of budget income).

In 2001 proportion of healthcare expenditure form GDP was 3.5%, in 2002 – 4.9% in 2003 – 5.0%. It must be noted that this is one of the lowest rates among other European countries. In 2003 proportion of healthcare expenditure from the state consolidated budget (13.2%) has increased comparing with 2002 (11.1%). In 2003 proportion "salary" has increased in the expenditures structure of both outpatient health care institutions and hospitals.

Healthcare expenditures expressed as percentage of the GDP make 3.73% in 2004. The share paid by the State in relation to the total expenditures for healthcare was 52.50%. in the year 2004. Healthcare expenditures as percentage of the GDP equalled 3.68% in 2006 and this made 10.35% of the state budget.

The patient's contributions collection and management are not centralized. The contributions are considered as income of state's health care service providers and are not included in the state's healthcare budget amount provided below.

### **3.1.2 The Main Healthcare Service Delivery Systems in Latvia**

Ambulatory care includes primary health care, provided by primary care physicians (general practitioners, primary care therapists or paediatricians) with their team, and secondary health care.[1] Stationary care means that the patients receive continuous treatment twenty-four hours a day. Stationary care includes secondary and tertiary level of medical services. Primary health care is the health care services provided by primary health care service providers in the

ambulatory institutions or at person's place of residence. The number of GPs has the tendency to grow – in 2002 it was 54% of the total number of primary care physicians and 55% in 2003.

Patients can freely choose their primary care physicians (family doctor, general practitioner). The principle "money follows the patient" is applied. They can change their physicians not more than twice per year (excluding change of address). Primary care physicians have a role of gatekeeper. Patient needs a referral from a primary care physician to visit a specialist or receive secondary level health care. Without a referral patient must pay out-of-pocket or through private health insurance.

No referrals are needed for direct approach such specialists: psychiatrist, pulmonologist for tuberculosis treatment, venerologist, narcologist, endocrinologist for diabetes, oncologist, gynaecologist or private specialists. Visiting private specialists, the patient pays for his treatment by himself/herself in full amount.

For hospitalization, with the exception of emergency health care, the referral from general practitioner or medical specialist is required. State guaranteed health care benefits are available at every physician, state, municipality and private hospital or health care institution, which is registered in accordance with Law on Medical Treatment and has a contract with a Health Compulsory Insurance State Agency or its branches. Secondary health care is the health care services provided by medical personnel in the ambulatory institutions, ambulatory divisions of stationary institutions, emergency medical care institutions, day hospitals and hospitals.

Regional multi-profile hospital provides person with secondary and tertiary stationary health care and specialist secondary ambulatory care. Regional multi-profile hospitals have not less than 300 beds with the average loading of 85% including 3% of intensive treatment beds. Local multi-profile hospital provides person with limited stationary health care in the cases of acute and chronic illnesses and specialist's secondary ambulatory care. Local hospitals have not less than 120 beds with the average loading of 85% including 3% of intensive treatment beds. Tertiary health care is highly specialized health care provided by medical personnel with one or several medical specialties and additional qualification in specialized medical centres or institutions. Specialized centre provides patients with secondary and tertiary health care that is specialized in single profile, performs methodological management of health care and ensures and provides specialist secondary ambulatory treatment. Specialized hospital provides patients with secondary health care that is specialized in single profile and ensures specialist secondary ambulatory treatment. Health care centre is a multi-profile or mono-profile medical institution, which provides person with mainly primary health care and/or secondary

ambulatory health care, diagnostics, medical rehabilitation care performs preventive measures and promotes cooperation between different health care and other institution specialists.

### 3.2 National Level Health Goals

The main issues and strategic goals of the national health care policy as well as its implementation strategy are indicated in the main policy planning documents which are the following:

- Policy Statements „Development of Human Resources in Health Care”

The policy statements were developed to create long-term human resources development politics, set priorities concerning human resources development and continue development of population oriented, rational, effective and high-quality healthcare sector. In order to promote human resources involvement in the health care sector the Policy Statements establish pay system, social guaranty and medical personnel professional risk insurance system as well as ratio of beds and patients per one doctor and nurse.

- Development program for outpatient and inpatient health care service providers

The goal of the program is to ensure further development of integrated health care by finding the most favourable service provider number and placement that would promote quality and accessibility of health care services. The strategy focuses on the rationalization of secondary and tertiary health care services through Master Plan. It proposes that state hospitals will be consolidated through developing multi-profile hospitals; closing or transforming small hospitals into nursing care hospitals, primary health care centres or social care institutions; and transforming single profile hospitals into long-term hospitals by moving current services to multi-profile hospitals or outpatient settings.

- Policy Statements of Emergency Medical Service development

The goal is to establish qualitative, accessible and effective emergency care system.

Key factors for further Emergency Medical Care integrity are:

- formation of unified State Pre-Hospital Emergency Medical Service
- new management and resource maintenance supported by modern technologies
- measures to motivate Emergency Medical Staff

- “National Program for Tobacco Control” 2006-2010

The goal of the program is to promote the health by reducing the use of tobacco and the effect of tobacco smoke.

- “Program for Reduction of Alcohol Consumption and Restriction of Alcohol Addiction for 2005-2008”

The goal of the program is to reduce the use of alcohol per one person and to limit the effect of alcohol on each individual as well as on the whole society.

- Public Health Strategy – Implementation Program of Public Health Strategy 2004-2010

The aim of the strategy is to increase the health level of the individuals and to approach the level of the best EU states in the field of public health. In order to achieve it improving of the information level about the health issues and promoting their motivation is needed.

- Program of Limitation of HIV and AIDS Dissemination, 2003-2007

The goal of the program is to limit the number of with HIV infected persons and to limit its dissemination in Latvia, as well as reduce its effect on individuals, risk groups and society in general.

- Policy Statements “Healthy Food” (2003-2013)

The main policy goals is education of society on issues of healthy food, promotion of breastfeeding, prevention of shortage of certain mineral substances and vitamins, promotion of accessibility of biological products, as well as education of students, school teachers, persons working in health care institutions or in relation with nutriment on the issues of healthy food.

- Strategy on Health Care of Mothers and Children

The strategy includes the main fields for development that will significantly affect the composition of future generations, standard of living and the health of society in general.

- Concept on Financing of Health Care

The aim of the concept is to evaluate the possible sources of financing and revenues that would ensure satisfactory level of financing for health care system of Latvia.

## **4 Strategic eHealth Plans/Policy Measures**

The section presents the national-regional ehealth policy and the investment and reimbursement framework in Latvia.

## 4.1 National-Regional eHealth Policy

The Ministry of Health and the Secretariat of Electronic Government Affairs are involved in the process of definition of national ehealth policy. Latvian eHealth roadmap, the concept document titled “eHealth in Latvia” was approved by the Order No.560 of the Cabinet of Ministers of the Republic of Latvia on August 17, 2005).[4][14] Through the year 2005, the Ministry of Health was working on the implementation plan for the concept “eHealth in Latvia”. It was planned that the implementation plan would be ready before the end of 2006.

Other documents relevant in this context:

- e-Latvia 2005-2008 [3][6]:

The Information Society programme “e-Latvia 2005-2008” aims to ensure the dynamic development and competitiveness of the country in the knowledge-based economy. Priority areas include e-Government, e-Learning, e-Business and welfare, eHealth, Broadband and access to services, and Security.

- National Development Plan of Latvia 2007-2013 [5]:

The document contains also the sections on health information and eHealth.

The roadmap “implementation chain” (the main “players” expected to participate) is: Ministry of Health, Health Compulsory Insurance State Agency, Health Statistics and Medical Technologies State Agency, Public Health Agency, regional and state hospitals, GPs. The eHealth roadmap was made public in 2005, after approval by the Cabinet of Ministers of the Republic of Latvia. It has been further disseminated since August 2006.

The following priorities for actions are defined in the Concept “eHealth in Latvia” [4][13]:

- Establishment and implementation of electronic health card and European electronic health insurance card

European Electronic Health Insurance Card (EHIC) should be adopted in 2008, replacing the paper-plastic based forms, to ensure the EU citizens need for health treatment being in other Member States. The e-Europe 2005 target is to build upon this, using Commission proposals for a common approach to patient identifiers, emergency data sets and electronic health record architecture, and create unified European electronic health card.

From August 1, 2005 only plastic European health insurance cards are available in Latvia that replaced previous paper E-forms.

- Implementation of health care institutions Electronic Health Record

At first the guidelines and standards for Electronic Health Record should be developed and approved by the statutory acts in Latvia. The establishment of separate information systems for big hospitals are foreseen to ensure the preparation and collection of the individual patients' electronic health records as there can be difficulties to start with centralized electronic health records storage system in Latvia. But in future we expect to build such system that the electronic health records (clinical diagnostic results, provided treatment etc.) are prepared decentralized in each hospital but storage and accessibility to information are provided through centralized system.

- Improvement of linkage and connection between health care institutions' internal information systems, as well as the improvement of electronic data exchange with state health care registries, health authorities and managers

Firstly, the standard of data exchange is developed between the internal information system and health care registers as well as statistical IS of the health care institutions. Digital data transfer enables more effective networking among health care institutions in Latvia, ensure the fast information flow between the health care providers in case of emergency or disasters, and provide the health authorities and managers with high-quality administrative and clinical data for policy making and state actions.

There are many new and good IS developed and established in Latvia (for example, communicable disease monitoring and control IS, medical devices market surveillance IS, unitary state's financial resources Management Information System (MIS), many statistical data registries and data bases etc.). Most of them are related to state function realization and are requested by European regulations.

The unitary state's financial resources MIS has been established in Latvia. MIS is the one of the biggest IS in Latvia. This system was created to ensure the proper state financial resources allocated for health care management and provide the Health Compulsory Insurance State Agency with data for organization of finance flow and for valuation of throughput. All major hospitals, many out-patient service providers and pharmacies are connected through Internet to MIS. This system is providing support for financial managers and government, related to financial control and also statistics of patient flow (patient amount, diagnosis etc.) and provided health care services (treatment methods, reimbursement of medicine etc.). So, the managers and policy makers can receive important data about health system in Latvia. Moreover, the amount of paper documents, which need to be fill in, is reduced.

- Standardization of health related services and provision of health care services electronically and online – the definition of the chain of health care services and the

implementation of IT technologies within the definite health care services with the aim to decrease paper work.

It includes such services as the appointments' (to general practitioner, health specialists, dentists and analyses) sign up or refusal, references, sign out, conclusion circulation, e-prescribing etc. The activities within this priority area save the time of patients and decrease the paper work for health professionals, provide the significant support for administration of health care institutions and management of financial resource as well as ensure the state control over medical prescriptions and drugs circulation.

- Improvement of access of health related information for society and health care professionals

The main objective is to provide patients, health professionals, policy makers and other interested stakeholders with reliable and qualitative health information. One of the main activities is the establishment and maintenance of centralized health care website that should be created on quality criteria for health related websites established by the European Commission, based on consensus among specialists in this field, health authorities and prospective users. The information should be separated between patients on the one side and health care specialists on the other side.

The home page for the medical professionals in Latvia has been developed. It contains information about the registered health care institutions, pharmacies, doctors' practices, and medical professional organizations etc. which are available in Latvia. It also provides access to many other registries like medicinal products register, links to other home pages related to health issue – the information that is necessary for practical work of medical specialists and managers. The maintenance of this home page is partly financed by the state agency – Health Statistics and Medical Technologies Agency. There is also possibility for every interested person or patient to ask questions to medical professionals. The doctor who is answering is responsible for the information provided for society.

Each governmental institution, which is working in the health field, has created their own home page where every person can find the information concerning particular institution, its functions and activities at national and international level. Many of health care service institutions and providers established their own home pages to inform the society about services and specialists available as well as its tariffs.

There are home pages related to general public which has not been created by the government institutions and have the information in "simple language". The sanctions

are also indicated in case of the information published in the internet is delusive or dangerous for health.

- Telemedicine development

It includes the establishment of centralized visual diagnostic IS, that foresees the visual diagnostic result of decentralized electronic preparing and provision of centralized storage and function circulation.

The application architecture for future health care results from the present architecture that will be supplemented with changes related to the implementation of new priorities and actions that are mentioned above. Currently, it is vital to develop common standards and integration platforms in Latvia, so that the separate IS would be possible to integrate into one joint system in future, if necessary, and establish unified information exchange mechanism.

Presently it is essential to implement such preconditions to launch the eHealth implementation in Latvia as the implementation of citizens' electronic identity cards and the implementation of electronic signature, as well as the improvement of knowledge and skills of health care specialists concerning the information technologies' application in health sector. The electronic signature is going to be implemented in year 2006.

The work on the implementation plan was started after approval of the policy document in August 2006. The beginning of the implementation process is planned for 2007.

The implementation plan was to be ready in the end of 2006, so it is irrelevant to assess the progress achieved in this stage. In this stage, document "Health IS architecture" was prepared. The work on implementation plan for the roadmap "eHealth in Latvia" was continued in 2006.

There are some preliminary plans within the activities of Health Compulsory State Insurance Fund in extending eHealth implementation to the field of social care. There is no information available on examples of existing or planned by- or multi-lateral cooperation among Latvia and other Member States in the field of eHealth.

#### **4.1.1 Dissemination and Co-Ordination Activities**

Activities introduced in IT council of Ministry of Health that have been launched for making the national/regional eHealth roadmap more widely known are presentations in conferences and public information campaign. Funding scheme encompasses development and upgrade of information system as well as support of professional training. Ministry of Health acts as a responsible organisation for these dissemination activities. Some activities of this type were assigned to Health Compulsory State Insurance Fund.[8]

Internet was used for the purpose of dissemination activities concerning the eHealth roadmap. An education programme will be prepared to introduce eHealth development. Mean that is made available to the general public for expressing their opinions on eHealth policies and plans is eHealth section in home page of Ministry of health (policy documents are made available for discussion and commenting).

## **4.2 Investment and Reimbursement Framework**

Funding scheme encompasses development and upgrade of IS, support of professional training. Investment in hardware and standardized software is discussed as the second priority. Establishment of the HMIS (Health Management Information System) in the Health Compulsory State Insurance Agency was carried out within the framework of a loan from the World Bank Project.[7] Currently, the use of structural funds and state budget is planned. So far, no reimbursement schemes were available to support the diffusion and implementation phase of eHealth applications.

## **5 eHealth Deployment Status**

The section presents the eHealth infrastructure, applications and services as well as interoperability and standards in Latvia.

### **5.1 eHealth Infrastructure**

#### **5.1.1 Physical Networks**

All major hospitals, many out-patient service providers and pharmacies are connected through Internet Management Information System (MIS). MIS system was created to ensure the proper state financial resources allocated for health care management and provide the Health Compulsory Insurance State Agency with data for organization of finance flow and for valuation of throughput.

The main infrastructure components established within this project included: a centralized system to provide reliable, scalable and secure data collection, a cluster server and on-line data input technology, Frame Relay Connection in order to connect to nodes, 2 standard UNIX servers (database server, web application server), and an Internet connection as an option when permanent connection is not available. The system was planned to handle 500 concurrent users from different institutions.[7] Regional networks are developed among some agencies regional units.

Latvia has neither dedicated healthcare network nor plans to establish one. There is no data on what is the penetration and rates of use of eHealth networks in healthcare settings,

research facilities, administration, citizens' homes or health-related business (e.g. pharmacies, private laboratories etc). There is no information on any success stories where progress was achieved with regard to the implementation and use of networks for eHealth purposes in Latvia, although the analysis of achievements in implementation of eHealth without focusing on networks was made.

### **5.1.2 Legal and Regulatory Framework – Overview and Discussion**

There is national legislation in Latvia addressing the following issues: data protection, digital signatures and Health-IT product liability. The Laws relevant to these areas include:

- Personal Data Protection Law of 23 March 2000, amended 24 October 2002
- The Electronic Document Law adopted on 31 October 2002, came into force in 1 January 2003
- Order No. 359 of Ministry of Welfare of 5 November 1997 „Registration Rules of Medical devices and goods”, amended In 1998
- Medical Treatment Laws of 20 June 2001 [12]

The relevant national bodies, authorities and other organisation involved in the process of overseeing and/or co-ordinating the development and enforcement of the legal and regulatory requirements for the areas considered here are:

- Latvian Data Protection Authority – Data State Inspection
- The Soros Foundation, whose aim is to establish a civil society in an independent Latvian State
- The Latvian Chapter of Transparency International
- The Human Rights Institute of the University of Latvia

Regional or national legislation on the targeted areas has been harmonized to the following EU-level regulations: Data Protection Directive, Recommendation on the protection of medical data, Directive on electronic signatures, Directive on privacy of electronic communications and e-Commerce directive through laws enlisted below:

- Personal Data Protection Law of 23 March 2000, amended 24 October 2002
- The Electronic Document Law adopted on 31 October 2002, came into force in 1 January 2003
- Law on Electronic Communications adopted on 28 October 2004, entered into force on 1 December 2004.
- Law on Information Society Services of 4 November 2004

### **5.1.3 Education and Training on ICT – Overview and Discussion**

Basic ICT skills are taught within existing education system. Some educational activities addressed to family physician in the range of telemedicine were held by Latvia Centre for Telemedicine.[11] Education programmes for health care professionals will be also prepared in order to support implementation process of ehealth environment in Latvia.

It seems that “Health ICT specialist” and “Chief Information Officer” are not recognised as a job profiles. There is also no specific training curriculum available to the competences of “Health ICT specialist”.

## **5.2 eHealth Applications & Services**

### **5.2.1 Electronic Health Records**

The document “eHealth in Latvia” foresees the activities focused on the development of guidelines and standards supporting EHR. It is also expected that in future a model of EHR with centralized access interface could be developed in Latvia.[4] Related concepts are also provided in Health Compulsory Insurance State Agency Information Management System.

### **5.2.2 Health Cards**

There are plans to introduce electronic HC insurance card in 2008.[4]

### **5.2.3 Health Portals**

Currently, there are only some projects evolving independently and home pages of institutions. Medicine.lv is an example of the existing medical vertical portal in Latvia. National eHealth Strategy includes plans for establishment of centralized health care website.

### **5.2.4 Patient Identifiers**

The activities on patient identifiers are related to the general approach to provide identifiers for citizens.

### **5.2.5 Other ICT tools assisting prevention, diagnosis, treatment, health monitoring, lifestyle management**

Latvia Centre for Telemedicine established in Riga offers to patients and other subscribers the service of tele-monitoring in the area of cardiology and pulmonology. Service is carried out with Card Guard solution.[11]

### **5.2.6 Telemedicine Services**

Latvia Centre for Telemedicine was established in Riga.[11] The main competency areas for telemedicine activities held in the Centre cover cardiology and lung diseases. The Centre uses

personal Card Guard system for registration and transmission of the data. Data obtained remotely from the patients are analysed by the medical staff available in the Centre over the clock. The Centre offers its services to several types of subscribers: individual users, individual or family doctors, medical institutions, collective consumers or public institution clients (e.g. hospitals). There are also some educational activities on telemedicine technologies held in the Centre and offered to family physicians.

There is another facility active in telemedicine situated in Riga; it is called Riga Municipal Agency, "Telemedicine Centre". Riga Municipal Agency Telemedicine Centre is established to achieve development and coordination of telemedicine, establishment of a single telemedicine network in Riga, organization of practical telemedicine consultations and fund raising activities. Centre mainly focuses on tele-radiology. The other interest areas are: tele-cardiology, patient consulting, and telemedicine system in emergency, telemedicine anti-terror systems, home telemedicine and tele-training.[2][19][20] In 2002, the Latvian Association of Telemedicine was founded. It carries out studies on the use of video-teleconferencing in diagnostics and treatment planning.[18]

### **5.3 Interoperability and Standards**

The current status concerning the adoption and implementation of technical health ICT standards in Latvia shows plans for the implementation of HL7. The relevant decision-making bodies concerning the use of healthcare coding and classification systems are: Health Compulsory Insurance State Agency, Health Statistics and Medical Technologies State Agency and Public Health Agency.

There is no common EHR architecture available on a regional or national level in Latvia. So far, no interoperability standards have been established on a regional or national level. There is also no common lifelong Electronic Health Record architecture available on a regional and/or national level in the country.

No form of conformity testing or accreditation scheme for eHealth systems and applications has been introduced in Latvia so far, however, there are plans to establish such scheme in future.

## 6 eHealth RTD Status

### 6.1 General Information on RTD Structure

The main actors in RTD policy setting in Latvia are administrative and organising bodies [15]. According to the law “On Scientific Activities” the structural organization of administration of Latvian research consists of [15][16]:

- The Saeima (Parliament)
- The Cabinet of Ministers
- The Ministry of Education and Science
- The Latvian Council of Science and its Expert Commissions [23]
- The Latvian Academy of Science [24]
- Latvian Academy of Agricultural and Forestry Sciences
- Research institutions
- Higher Education establishments [21]

The Saeima (Parliament) determines the state strategy in scientific and technological development and allocates the budget for science. The Saeima has formed a Commission of Education, Culture and Science consisting of deputies and prominent representatives from the appropriate fields. The primary task of this commission is to make concrete decisions about Research and Development politics, revise the state budget for science and to pass these decisions back to the Saeima for ratification.

The system of Latvian science and technology is regulated by several acts [16]:

- The Law “On Scientific Activity” (1992) with amendments (1996 and 1998). This law regulates the administrative, financial and institutional features in the area of research and development and determines the competence of the Latvian Council of Science, the Ministry of Education and Science and other bodies. It prescribes the research and development financing priorities through the state budget and determines the rights and duties of organizations and individual (legal and physical entities) engaged in research.
- The Law “On Higher Education Establishments” (1995) regulates the status, the rights and tasks, the establishment and reorganisation, the accreditation, the juridical basement, the international co-operation of Higher Education Establishments; the economical and research actions in Higher Education Establishments; the rights and obligations, the terms and enrolment of students; the study programs, the status, rights and obligations of Higher Education Council.
- Regulations of Cabinet of Ministers which are important for scientific activities:
  - On state ordered research projects

- Statutes of State Commission of scientific qualification
- On state research programmes
- On the arrangements and criteria for awarding of scientific degrees
- On the Latvian Council of Science
- On state scientists emeritus
- Intellectual property rights are regulated by:
  - The Patent Law (1993)
  - The Trademark Law (1993)
  - The Law on Industrial Design Protection (1993)
  - The Copyright Law (1993) which includes provisions for computer programme and data base protection
  - The Law on the Protection of Plant Varieties (1993)

In 1992 the Government adopted a decision on the provisional schedule for the protection of industrial property rights. In 1993 Latvia joined the Convention Establishing the World Intellectual Property Organization, re-established its membership of the Paris Union by way of accession to the Stockholm Act of the Paris Convention for the Protection of Industrial Property, and acceded to the Patent Cooperation Treaty. In 1994 the Government signed an agreement with the European Patent Organization "On the Extension of European Patents to Latvia".

To ensure that industrial property rights are granted and protected, Latvia re-established the National Patents Office in 1992. Later, in 1993, a special institution was established for the purpose of granting rights in the field of plant variety protection. The Law on Amendments to the Latvian Criminal Code of 1995 provides for criminal liability in the case of violation of copyright and associated rights.

The preparation of legislative acts for the protection of intellectual property is the responsibility of the Parliament, the Cabinet of Ministers and the European Integration Bureau within the Ministry of Foreign Affairs. The National Patent Office and the Ministry of Culture are responsible for the realization of these acts. The Academy of Sciences has a committee charged with monitoring the ethical aspects of research activities.

The main groups that are directly involved/undertaking RTD activities in Latvia are universities, research institutes and companies.

The targets for RTD activities were described in The National Concept of Research and Development.[15][16] This concept was in agreement with the declaration included in paragraph 18 of the law "On Research Activity" accepted by the Government of Latvia. The strategy was prepared in the form of a summary of action statements for the period up to the year 2010. It took into account the growing role of research in society and its impact on the

economy. The national concept consists of the following evaluations, conclusions, and suggestions of experts:

- A description of the state of research in Latvia.  
The main principles for the development of science and research including the setting of priorities in principal research areas; the renewal and strengthening of research staff; financing; the development of international collaboration as for example participation in the EC Framework 5<sup>th</sup> Programme.
- A working programme for the years 1998-2010.  
This document was submitted to and accepted by the Cabinet of Ministers in July of 1998.

## 6.2 Research Programmes

Prioritisation of disciplines for basic and applied research funding is approved by the Cabinet of Ministers once every four years. This is in line with the national strategy and policy of scientific and technological development. Thematic priorities defined for the period 2002-2005 included [17]:

- information technologies (system and software engineering of new technologies, telematics, multimedia and telecommunications);
- organic chemistry and biomedicine (gene therapy, new technologies for the synthesis of bioactive substances);
- material sciences (nanotechnologies, new materials for microelectronics, fotonics and optoelectronics, bio- and other composite materials);
- forestry and wood sciences (forest development, rational utilisation of wood biomass, chemical processing of timber);
- Letonica (Latvian language, history and cultural) studies.

The priorities including biomedicine and information technologies are funded under the Programme "Promotion of science competitiveness".

A new set of thematic priorities was established on 30 May 2006 by the Cabinet of Ministers. These priorities were established for the years 2006-2009. They cover previously accepted 5 thematic lines and 4 new ones: agrobiotechnology, energy, environment and health sciences.

Two national research programmes ("Information technologies" and "Organic synthesis and biomedicine") are focused on thematic priorities which may be relevant for RTD in eHealth domain, even if eHealth was not explicitly mentioned in their structure.[17]

### **6.3 National RTD Funding**

The funding available for RTD in Latvia comes in 50% from public funds. It is distributed by the Ministry of Education and Science and to some extent by the Ministry of Economy. The funding for RTD activities provided by the private sector remains on the level of about 30%. Considerable part of funding comes from foreign sources.

The project-based mechanism of funding is managed by the Latvian Council of Sciences. The Council is involved in the distribution of the resources to the branch commissions, which in turn finance specific project grants after conducting the process of project proposals evaluation. Evaluation procedures are based on the review prepared by at least two experts. The selecting criteria for the research grants include originality/novelty, feasibility, adequateness of the methodology, availability of equipment, the proponents' qualification and former scientific achievement, involvement of young researchers, international collaboration, estimated importance of the outcome for research, applicability of the outcome, financing from other sources, clarity and correctness of the proposal, adequateness of involved staff and budget. After their positive opinion, the Commission indicates the funding level for the project. Final decision is confirmed by the Council of Sciences.

The programme-based funding for specific priority lines and "institution-driven" mechanism are also present in the Latvian system of RTD support

### **6.4 Technology Transfer and Innovation Support**

There some initiatives on the regional or national level to promote and support technology transfer in the area of eHealth or related fields carried by the Innovations Relay Centre IRC-Latvia [9] and the Inventions and Inventors of Latvia [10].

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