



The Development of eServices in an Enlarged EU: eGovernment and eHealth in Lithuania

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PREFACE

Policy context

At the European Council held in Lisbon in March 2000, EU-15 Heads of Government set a goal for Europe to *become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*. The renewed Lisbon goals of 2005 emphasize working for growth and jobs, and include plans to facilitate innovation through the uptake of ICT and higher investment in human capital.¹

Information and Communication Technologies, and related policies, play a key role in achieving the goals of the Lisbon strategy. In 2005, the new strategic framework for Information Society policy - i2010² - identified three policy priorities: the completion of a single European information space; strengthening innovation and investment in ICT research; and achieving an inclusive European Information Society.

All three priorities, and especially the last one, consider public services to be a key field for the application of ICT, because of the impact that ICT-enabled public services could have on economic growth, inclusion, and quality of life. Within this framework, policy actions have been taken in fields such as e-government³ and e-health.⁴ Public services have also been included as application fields for ICT in the 7th Framework Programme for Research and Development⁵ and in the ICT policy support programme of the Competitiveness and Innovation Programme (CIP).⁶

Research context

IPTS⁷ has been researching IS developments in acceding countries⁸ since 2002.⁹ The outcomes of this prospective research, which aimed to identify the factors influencing Information Society developments in these countries and the impacts these developments have on society and the economy, point to the need for better understanding the specific contexts in each member state for the take-up of e-applications, in particular eGovernment, eHealth, and eLearning. These key application areas have an impact not only on the relevant economic and public service areas but also on the development of the knowledge society as a whole.

Taking the above into account, IPTS launched a project to support eGovernment, eHealth and eLearning policy developments managed by DG INFSO and DG EAC. The research, which was carried out by a consortium led by ICEG EC in 2005, focused on the three application areas in the ten New Member States¹⁰ that joined the European Union in 2004, in order to build up a picture of their current status and developments in the field, the most important opportunities and challenges they face, the lessons other member states may learn from them, and the related policy options. National experts from each country gathered the relevant qualitative and quantitative data for analysis, in order

¹ http://ec.europa.eu/information_society/eeurope/i2010/index_en.htm

² "i2010 – A European Information Society for growth and employment" COM(2005) 229

³ "I2010 eGovernment Action plan" COM(2006) 173

⁴ "e-Health - making healthcare better for European citizens" COM (2004) 356

⁵ See <http://cordis.europa.eu/fp7/ict/> and Official Journal L 412 of 30/12/2006

⁶ Official Journal L 310/15 of 9/11/2006

⁷ Institute for Prospective Technological Studies, one of the seven research institutes that make up the Joint Research Centre of the European Commission

⁸ Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, and Turkey

⁹ For a list of complete projects and related reports see <http://fiste.jrc.es/enlargement.htm>

¹⁰ Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovenia and Slovakia

to develop a meaningful assessment of each country's current state, and trajectory, and to find out the main factors. This allowed them to derive the relevant conclusions in terms of policy and research.

The IPTS team designed the framework structure for the research, the research questions and methodology. This team and the consortium coordinator jointly guided the national experts in their work through workshops, extended reviews and editing of the various interim reports. Data sources such as international and national survey data, literature, policy documents, and expert interviews were used to capture the most recent situation of the country.

In addition to national monographs describing eGovernment, eHealth and eLearning developments in each country, the project has delivered a synthesis report, based on the country reports, which offers an integrated view of the developments of each application domain in the New Member States. Finally, a prospective report looking across and beyond the development of three chosen domains was developed to summarize policy challenges and options for the development of the Information Society towards the goals of Lisbon and i2010.

eGovernment and eHealth in Lithuania

This report was carried out by the Lithuanian member of the consortium, the Lithuanian Free Market Institute, and presents the results of the research on eGovernment and eHealth in Lithuania.

First, it describes Lithuania's government and health system and the role played by eGovernment and eHealth within this system. Then, the major technical, economic, political, ethical and socio-cultural factors of the eGovernment and eHealth developments, as well as the major drivers and barriers for them in the country, are assessed. These provide the basis for the identification and discussion of policy options to address the major challenges and to suggest R&D issues for facing the needs of the country. The report reflects the views of the authors and does not necessarily reflect the opinion of the European Commission. Its content has been peer reviewed by national experts, ICEG EC, and IPTS.

In this study, **eGovernment** (European Commission COM (2003)567) is defined as the use of information and communication technologies in public administrations, combined with organisational change and new skills, to improve public services and democratic processes and strengthen support to public policies. Thus, it encompasses the dimensions of public administration, democracy, governance and policy making.

Furthermore, the vision of eGovernment in the EU for the next decade as a tool for better government in its broadest sense should be taken into account when considering the scope of eGovernment developments. This vision places eGovernment at the core of public management modernisation and reform, where technology is used as a strategic tool to modernise structures, processes, the regulatory framework, human resources and the culture of public administrations to provide better government, and ultimately, increased public value.

The creation of public value is a broad term that encompasses the various democratic, social, economic, environmental and governance roles of governments. Concrete examples of these roles are: the provision of public administration and public services (health, education, and social care); the development, implementation and evaluation of policies and regulations; the management of public finances; the guarantee of democratic political processes, gender equality, social inclusion and personal security; and the management of environmental sustainability and sustainable development.

eHealth is defined as the use of modern information and communication technologies (ICTs) to meet the needs of citizens, patients, healthcare professionals, healthcare providers, and policy makers. It makes use of digital data, transmitted, stored and retrieved electronically, for clinical, educational and administrative purposes, both at local sites and at a distance from them. Hence the study looks into the use of ICT in public health policy and prevention of disease, information services to citizens, integrated patient management and patient health records, and telecare and independent living services applications.

From early 2008, all reports can be found on the IPTS website at: <http://ipts.jrc.ec.europa.eu/publications/index.cfm>

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List of abbreviations

CDA	Clinical Document Architecture
CEN	European Committee for Standardisation
CT	Computed tomography
GDP	Gross Domestic Product
GP	General Practitioner
eH	eHealth
eHIS	Electronic Health Information System
EMU	European Monetary Union
EHR	Electronic Health Record
EPR	Electronic Patient Record
ERP	Enterprise Resource Planning
EU	European Union
EUR	euro
FDI	Foreign Direct Investment
HISA	Standard Architecture for Healthcare Information System
HL7	Health Level Seven. Messaging standard.
ICD	International Classification of Diseases
ICT	Information and Communication Technologies
IDABC	Interoperable Delivery of European eGovernment Services to public Administrations, Businesses and Citizens.
IHE	Integrating Healthcare Enterprise
IS	Information Society
ISDC	Information Society Development Committee
ISSS	Information Society Standardization System
IT	Information Technology
ITIL	IT Infrastructure Library
FP5	The Fifth Framework Programme (FP5) for the European Union's research, technological development and demonstration (RTD) activities for the period 1998-2002.
KEF	Knowledge Economy Forum
LFMI	Lithuanian Free Market Institute
LIBIS	Lithuanian Integral Library Information System
LHIC	Lithuanian Health Information Center
LNHS	Lithuanian National Health System
LOINC	Logical Observation Identifiers Names and Codes
LTL	Lithuanian Litas

MoH	Ministry of Health
NGO	Non-governmental organizations
NHIS	National Health Information System
NMS	New Member States
OASIS	Organization for the Advancement of Structured Information Standards
OHIF	Obligatory Health Insurance Fund
OS	Open Source
PC	Personal Computer
PHC	Primary Healthcare Centres
PIAP	Public Internet Access Points
PKI	Public Key Infrastructure
PPP	Public Private Partnership
PPS	Purchasing Power Standard
SHC	Secondary Healthcare Centres
SNOMED	Systematized Nomenclature of Medicine
SOA	Service Oriented Architecture
SOAP	Service Oriented Architecture Protocol
Sodra	State Social Insurance Fund
SPD	Single Programming Document
SPF	State Patient Fund
SSF	State Sickness Fund
SSL	Secure Sockets Layer
Sveidra	State Patient Fund Information System Sveidra
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TCO	Total Cost of Ownership
UK	United Kingdom
VAT	Value Added Tax
WSDL	Web Services Description Language
XML	Extensible Markup Language

INTRODUCTION: COUNTRY FEATURES - LITHUANIA

General information on Lithuania

Figure 1. Map of Lithuania



Capital -	Vilnius
Surface area	65 200 sq. km
Population -	3 403.2 (I quarter of 2006)
Regional division	4 ethnical regions 10 administrative regions (shown in the map colour coded) 54 municipalities
Lithuanians	83.4%
Catholics	79%
Gross Domestic Product (GDP) per capita	EUR 5 264 (2005)
Unemployment (labour force survey)	6.8% (beginning of 2006)
Inflation (average annual)	2.7% (2005)
Foreign Direct Investment (FDI)	EUR 5.278bn (October 2005)
Currency unit	Litas (EUR 1 = LTL 3.45)

Economic situation, economic growth

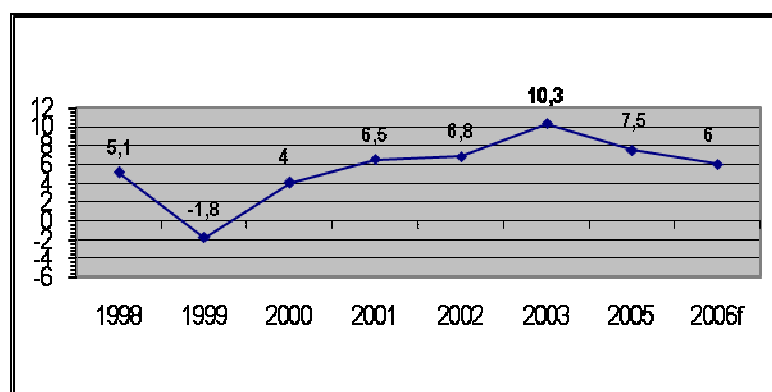
Lithuania maintains a strong macroeconomic position and remains one of the fastest-growing economies in the region. The country has shown a high rate of economic growth for the past several years, hitting a record high of 10.3% in 2003. In 2005 GDP at current prices amounted to EUR 20 563bn (LTL 71 001bn).¹¹ Lithuania's GDP grew by 7.5%, up from 7.0% in 2004. This was an impressive performance compared to a 1.3% growth of the Euro-zone and a 1.6% growth of the EU-25. PPS GDP per capita totalled EUR 5 264. According to Eurostat (Eurostat 2006), in 2005 PPS GDP per capita in Lithuania was around half the EU-25 average (Lithuania=52 against EU25=100), 68% below the EU-15 average, around 10% below the New Member States (NMS) average and 54% below the Euro-zone average. Lithuania ranked in the eighth place among EU-10, outstripping Poland with 50 and Latvia 47 and falling behind the leading Slovenia by 28%.

The composition of the Lithuanian economy has changed over the past decade in favour of the services sector. With 56% of total working population, the services sector accounted for 66.5% of GDP in 2004, up from 58.4% in 1995. The largest services sectors are transport, storage and communication and retail and wholesale trade (12.8% and 18% of GDP respectively). Industry, which employed 21% of the working population, contributed 25.7% of GDP. Agriculture is a decreasing sector. In 2004 it made up 5.6% of GDP, a decrease from 10% in 1998. Agriculture employs 14% of working individuals, which is the second-highest indicator after Poland among the new EU member-states.

In 2004 growth was recorded in all branches of the economy, except for mining and quarrying. Transportation, warehouse and communication, construction, trade, manufacturing, and hotels and restaurants showed the highest rates of growth. Growing household income, positive consumer outlook and a growing consumer credit market have boosted wholesale and retail trade. The construction industry has been affected by the expanding housing loan market and a growing affordability of construction services caused by competition-affected price cuts. Admittedly, residential prices are soaring today, as the demand for residential facilities, which is being driven by people's growing income and wants, is markedly exceeding the supply. The growth of supply in turn is being impeded by a shortage of land, which is caused by a slow land restitution process and land planning regulations. Fears related to possible prices rises after the introduction of the Euro are also adding to the residential purchase and investment boom. Economic developments in Lithuania have been adversely affected by high and continuously volatile oil prices on the world market and economic difficulties in the Euro area.

¹¹ A preliminary estimate.

Figure 2. GDP growth in Lithuania (%)



Source: Statistics Lithuania, 2006

On the demand side, growing domestic demand has been the most powerful engine of growth since 2003. An impressive growth of credits, recorded since 2003, and rising wages have been major factors of the rising domestic market and private consumption growth. In 2005 the loan portfolio of Lithuanian banks grew by 53.6% (an average of 44% during 2002-2004), while the growth of the private loan portfolio was traditionally almost twice as big (92%). The housing loan portfolio went up by 86.5%. Such a rapid growth of the loan market is attributed to a low credit base (the ratio of domestic loans to GDP was 30% in 2004,¹² while the ratio of the housing loan portfolio to GDP in Lithuania is a mere 7%), a longer maturity of loans, and improved economic outlook. Intense competition in the banking sector continued to push down interest rates.¹³

Wages started to pick up in the last two years, overtaking labour productivity growth in 2004. In 2004 real labour productivity growth was estimated at 7.1%,¹⁴ while nominal wage growth stood at 7.9%.¹⁵ It is expected that migration-caused decrease in labour force, growing corporate efficiency and profitability and an upcoming reduction in the personal income tax (from 33% to 27% from July 2006) will continue to stimulate real wage growth.

An impressive export growth, boosted by a rising domestic market, has been another major contributing factor. In 2005 export grew by 27%, up from 21.4% in 2004. Despite favourable preconditions for investment (falling interest rates on loans, growing profitability and a growing confidence in the economy), the growth rate of capital investments dropped from 12.6% in 2004 to 11.8% in 2005. The biggest, twofold increase was recorded in investments into the purchase of real estate, while the areas of investments supported with EU assistance funds did not experience an upsurge.¹⁶ Recently FDI flows have been quite meagre and have had a minor impact on material investments in Lithuania. On October 1, 2005 FDI in Lithuania totalled EUR 5 278bn, or EUR 1 549 per capita.

The composition of the Lithuanian industry remains fairly stable. In 2004 manufacturing accounted for 20.5% of GDP; mining and quarrying, for 0.5%, and electricity, gas and water supply, for 4.4%. Manufacturing is dominated by low-skill branches, including food products and beverages (18.9% of total industrial production sales in 2004) and the woodworking and furniture industry (11%). A profound impact on the country's economy is exerted by the oil industry, which accounts for one-fifth

¹² An average of 120% in the EU member-states in 2003.

¹³ In 2005 the average interest rate on loans was 5% for loans in litas and 3.87% for loans in euros

¹⁴ The biggest increase in labour productivity was recorded in manufacturing and consumption-related sectors (construction and manufacturing services).

¹⁵ During 2001-2003 labour productivity grew by more than 20%, compared to a 9.2% wage growth.

¹⁶ In 2005 investments in equipment and machinery rose by 11.9%, a twofold decrease from 2004 (25.5%). Investment in construction and repair rose by 3.8%, compared to 4.8% in 2004. Source: Statistics Lithuania

of total industrial sales. The textile and apparel industry, which boasts old tradition in Lithuania and stands at one-tenth of industrial sales (10.6%), is grappling with falling competitiveness on the world markets and looking for new ways to bolster it. Radio, TV and communication equipment and apparatus, electrical machinery and medical apparatus, which account for 7.5% of industrial production sales and export the bulk of production, were showing a solid growth in recent years. These high- and medium-high-technology sectors account for about one-fifth of total value added produced in manufacturing. Other robust sectors include the chemical industry (5.2%) and the rubber and plastic industry (3.8%).

In 2005 the public sector deficit stood at 2.3% of GDP, down from 2.5% in 2004. Lithuania's indicator is below the Maastricht ceiling placed on public sector deficit (3%). The central government deficit stood at 1% of GDP. Pursuant to the Lithuanian Convergence program, the public sector deficit in Lithuania should not exceed 1.8% in 2006 and 1.5% in 2007.

Lithuania maintains a relatively low and stable public sector debt. In 2005 it totalled EUR 3 852 billion. The public sector debt fell from 22.3% in 2002 to 19.5% of GDP in 2004 to 18.7% in 2005 (against a 60% Maastricht requirement), which is one of the lowest indicators in the European Union (in comparison, the EU-25 average was 63.4% in 2005 and the NMS-10 average was 45.2% in 2004). The consolidated central government debt accounted for 95.7% of total public sector debt, local government debt comprised 3.6% and the social security funds debt made up 0.7%. Domestic debt constituted 40% of total public sector debt and foreign debt accounted for 60%. Unredeemed securities made up the lion's share of public sector debt (an increase from 82 to 86.6 on year); with the rest being outstanding loans (a decline from 18 to 13.4% on year). The long-term debt comprised 89% of total debt.

Until 2005 Lithuania complied with all Maastricht criteria set for the EU members wishing to join the EMU. Inflation continued to be very low until 2004 (-1.3% in 2003), largely due to intense competition and fiscal discipline. The annual rate of inflation grew to 2.9% in 2004 and 3.0% in 2005. In 2005 the average annual rate of inflation stood at 2.7%, up from 1.2% in 2004. The biggest price increase was recorded in the transportation sector (10%). Utility services, water, electricity, gas and other fuel ranked second (6.7%), followed by food and beverages (3.5%). Communication prices fell the most (5.2%). Lithuania met the Maastricht inflation criterion for six consecutive years, but the recent rise in the price level, caused largely by rising oil prices on the world market, upset Lithuania's plans to introduce the Euro from 2007. The European Commission issued a negative recommendation on Lithuania's accession to the Euro zone. In March 2006 Lithuania's average annual inflation rate was 2.7%, just 0.1 percentage points above the Maastricht inflation convergence criterion (2.6%). The official forecast of the average annual inflation rate for 2006 is 2.9%.

The completion of many major restructuring projects¹⁷ and a rising demand for workforce caused by a steady economic growth and more recently migration, have pushed down unemployment. Unemployment fell from 10.2% in December 2004 to 6.8% in December 2005 (the EU-25 average was 8.5% in December 2005), Eurostat reports. Yet, the rate of long-term unemployment, comprising half of all jobless individuals, remains a concern, according to Statistics Lithuania. The main reason behind the high level of long-term unemployment is a large proportion of low-skilled jobless people (they account for half of the unemployed). The level of youth unemployment, also due to emigration, fell almost twice over the year and stood at 12.8% in the third quarter of 2005. Lithuania's labour market is characterised by disparities in the distribution of labour force, with a surplus in certain professions and a shortage of qualified workers. This is attributed mainly to a lack of flexibility in the professional training system against market needs and increased economic migration stimulated by the opening of EU labour markets.

There are wide disparities in Lithuania's regional indicators. Regional contribution to GDP ranges from 35% in the Vilnius region and 19% in the Kaunas region to 4% in the Alytus and Marijampole region and 2% in the Taurage region. In 2003 GDP per capita by regions varied from 144% of the country's average in the Vilnius region and 107% in the Klaipeda region to 68% in the Marijampole

¹⁷ Except for the Ignalina Nuclear Power Plant and the Lithuanian Railway.

region and 54% in the Taurage region. In the first quarter of 2006 the rate of unemployment ranged from 9.6% in the Panevezys region and 7.9% in the Klaipeda region down to 4.6% in the Marijampole region and 4.7% in the Taurage region.

Economic growth in Lithuania is expected to slow down over the next few years. The forecasts are 6% for 2006, 5.3% for 2007, and 6.8% for 2008. Domestic demand will remain the main engine of economic growth. A faster wage growth, falling unemployment, the opening of EU labour markets and high consumer expectations will be the main factors that will continue to boost the domestic market.

Demography indicators, population developments

Lithuania's population is decreasing. At the beginning of 2006 Lithuania's population totalled 3 403 200, a decline of 22 100 per year. Since 1995 the population has decreased by 218 000 or 6%. Men represent 46% of Lithuania's population, and women - 54%.

A falling birth rate, natural decrease and economic migration are the main causes of these downward population trends. The birth rate has been falling steadily since 1990 (with the exception of 2003) and has decreased almost twofold. In 2004 there were 30 400 live births, or 179 less than in 2003. The birth rate stood at 8.9 per 1 000 people, down from 9.8 in 2000. The total fertility rate was 1.26 in 2004, compared to 1.39 in 2000.

The mortality rate has been on an upward trend since 2001, reaching 12 in 2004 against 11.1 in 2000. The mortality rate in Lithuania is higher by one-fourth than the EU-15 average (9.5). Over the past five years the mortality rate went up by 7.5%. The mortality rate of men is 28% higher than that of women. Infant mortality stood at 7.9 per 1 000 live births, up from 6.8 in 2003 (4.6 per 1 000 live births in the EU-15 in 2002).¹⁸ In 2004 a total of 240 infant deaths occurred, 34 more than in 2003. The mortality rate in the age groups of 1 to 14 and 15 to 59 remained almost unchanged over the past five years and stood at 0.3 and 4.6 per 1 000 population respectively in 2004. A falling birth rate and growing mortality have conditioned a trend towards a natural decrease. Lithuania's natural decrease was 3.2 in 2004, compared to 1.3 in 2000.

The structure of death causes in Lithuania remains relatively stable and similar to that in the EU countries. The most common causes of deaths are diseases of the circulatory system, malignant tumours and non-medical accidents. They account for 86% of deaths.

Most people die by cardiovascular diseases. From 2000 through 2004 the number of deaths by such diseases went up by 8% and was 116.3 cases per 100 000. Deaths by diseases of the circulatory system accounted for 45.6% of male deaths and 64.5% of female deaths. In 2004 every fifth death was caused by malignant tumours. Over the past five years deaths by malignant tumours went up by 5% and comprised 84 cases per 100 000 population. The number of deaths by malignant tumours is 1.5 times bigger among men than among women (278 male deaths per 100 000 men and 191 female deaths).

The number of deaths by non-medical causes (accidents and injuries) is falling. In the period from 2001 until 2004 such deaths went down by 6.4% and comprised 99.1 cases per 100 000. In 2004 a total of 5 077 people (12.3% of deaths) died by non-medical causes. The number of deaths by non-medical causes among men is bigger fourfold than among women. Although the number of suicides in Lithuania is decreasing (a 16% decrease over the past five years), this indicator remains one of the biggest in Europe. In 2004 a total of 1 381 persons committed suicides, which means 40 per 100 000 population (70 men and 14 women).

Average life expectancy decreased slightly in 2004 and stood at 72.06 years.¹⁹ There remains a big gap between the male and female indicators, and this gap is the biggest of all EU member-states, Eurostat reports. In 2004 the average life expectancy for men was 66.3 years and for women, 77.7 years.²⁰ Women live 11.4 years longer than men (the EU average is 6 years). The female average life

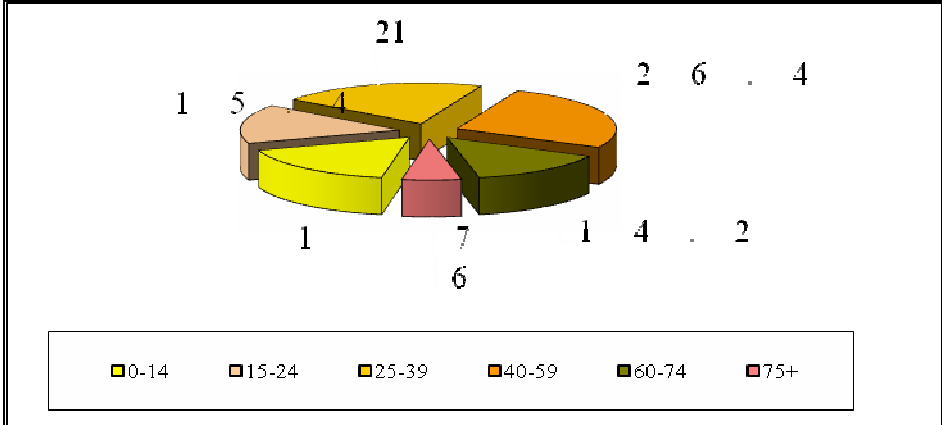
¹⁸ 8 per 1 000 live births (2003) (UNDP, 2005).

¹⁹ 72.2 years (2000-2005), (UNDP, 2005).

²⁰ 66.6 years for men and 77,8 years for women (2003), (UNDP, 2005).

expectancy is similar to the EU average (81.2 years); while the male indicator is much lower (75.1). Over the past five years the average life expectancy of men in Lithuania fell by 0.4 a year and that of women, by 0.3 a year.

Figure 3. Population by age group at the beginning of 2005 (%)



Source: Statistics Lithuania, 2005

As is the case in other European nations, the Lithuanian population is aging: every year elderly people comprise a growing proportion of the population. At the beginning of 2005 every fifth inhabitant of Lithuania (691 700) was aged 60 and above. It is predicted that at the beginning of 2050 every third person (34.6%) will belong to this group. Children constitute one-fifth of the Lithuanian population. The number of children has declined steadily. From 2000 until 2005 the number of children went down by 14.4% or 125 000. Over the past 15 years it has decreased by one-fourth. A particularly big reduction has been recorded in the pre-school age group (45%).

It is predicted that by 2030 the Lithuanian population will decrease by 10% and stand at 3 117 200, according to Statistics Lithuania. The trend towards an aging society will persist. It is expected that the birth rate will increase in the near future due to deferred procreation. Yet, the total fertility rate will stand below 2.1. The mortality rate is expected to decline slowly during the period from 2005 to 2030, mainly due to sustained economic growth, better quality of social conditions and healthcare, and a healthier life. By 2030 the average life expectancy is expected to reach 73 years for men and 83 years for women, an increase of 7 and 5 years respectively from 2002.

Lithuania’s demography indicators are strongly influenced by international migration. By various estimates, around 300 000 Lithuanian citizens have emigrated to the West following the restoration of Lithuania’s independence. Migration flows have escalated since Lithuania’s accession into the European Union. According to official statistics, around 15 000 people per year emigrated from Lithuania in 2004 and 2005. Yet, these data reflect registered migration (the number of people who reported on their emigration) which is only a part of total migration. Some experts (Adomenas, 2006) note that the legal/illegal, or registered/non-registered, migration ratio is 1/3, so the actual migration might be three times that of official registered statistics. According to analysts, (Thaut, 2006) since Lithuania’s accession into the European Union annual migration flows to the European Union have reached 40 000 to 50 000.

General health sector indicators: spending for healthcare in % of GDP, major healthcare indicators

The share of public sector expenditure for healthcare had decreased since 1998, but in 2005 it went up and reached 4.0% of GDP. In the 2005 national budget expenditures on healthcare (including the state and municipal budgets and the mandatory health insurance fund) amounted to EUR 0.824bn (LTL 2.84bn), an increase of 19.9% compared to 2004. This was the first marked increase of spending on healthcare during the past several years. Public healthcare expenditure per capita was EUR 241.3

(LTL 833.2). In 2006 healthcare expenditures will comprise 6% of national budget allocations and 4.1% of the projected GDP.

The mandatory health insurance fund is the main source of funding of healthcare. In 2005 its expenditure on healthcare reached EUR 0.728bn (LTL 2.513bn) and accounted for 88% of all public sector spending on healthcare. Total public and private expenditures on healthcare were estimated at EUR 1.178bn (LTL 4.1bn) or 5.71% of GDP in 2005. During the years 1998-2005 the average household's expenditure on health per capita increased twice (from EUR 51.4 (LTL 177.6) in 1998 to EUR 103.6 (LTL 357.6) in 2005). Private expenditures on healthcare, calculated on the basis of official household budget surveys and population data, were estimated to total EUR 0.348bn (LTL 1.2bn) or 30% of total spending on healthcare, Lithuania Health Information Centre reports.

The number of people suffering from tuberculosis and other contagious diseases in Lithuania is falling. In 2005 it was 233.8 per 100 000 population, down from 335 in 1999 and 256 in 2003. However, indicators of tuberculosis morbidity have increased in 2005: 2 107 new cases of tuberculosis were diagnosed, which constitutes 61.7 per 100 000 (2027 cases or 59 per 100 000 in 2004). By comparison, this indicator was 65 per 100 000 population in 2003 and 13 per 100 000 in the EU-15. The number of people suffering from malignant tumours is steadily increasing. In 2005 it was 1 998.7 per 100 000, up from 1 844 in 2003 and 1 731 in 2000.

Table 1. Major health indicators in Lithuania

	1995	1998	1999	2000	2001	2002	2003	2004	2005
Doctors per 10 000 population	40.8	41.3	41.5	40.2	40.4	40.0	39.7	39.1	40.1
Hospital beds per 10 000 population	111.4	100.7	98.8	97.9	92.4	89.6	87.0	84.6	81.5
Active TB incidence per 100 000 population	65.1	79.6	72.6	66.6	63.9	60.4	65.1	59.0	61.7
Active TB prevalence per 100 000 population	257.1	322.4	335.2	307.7	278.2	269.9	256.2	246.7	233.8
Prevalence by malignant tumours per 100 000 population	1301.0	1533.8	1635.4	1730.7	1788.5	1816.0	1844.0	1935.8	1998.7
Public spending*, % of GDP	4.2	4.7	4.5	4.3	4.1	4.1	3.9	3.8	4.0

Source: Statistics Lithuania; * Data of Lithuania Health Information Center

Healthcare insurance and restructuring of healthcare establishments are the two main objectives of the healthcare reform which has been implemented over the past decade. An inadequately large emphasis placed on inpatient treatment has been one of the factors behind the low efficiency of the healthcare system at large. Regardless of the fact that over the past ten years the number of hospital beds has fallen by 24%, Lithuania still is among leaders according to this indicator. Cases of hospitalisation per 100 people in Lithuania are markedly higher than in the EU (23.8 and 18.9 per population,

respectively) in 2005. Many hospitals work ineffectively, especially those in small towns. However, only very few hospitals were closed and merged during the period from 1998 and 2005.

The number of private healthcare establishments has grown over the past several years, however, only of a certain type. In 2005, there were 1 521 private medical institutions, of them 928 dentist's offices, 12 in-patient establishments, and 163 primary healthcare institutions. It is instructive to note that about 64.8% of doctors in the private sector are also employed in public institutions. A total of 50.9% of all dentists and a scant 7.3% of all doctors are working only in the private sector.

Over the past 15 years the number of physicians decreased and in 2005 it stood at 13 650, or 40.1 per 10 000.²¹ The number of licensed general practitioners is growing. There were 1 730 general practitioners, or 5.1 per 10 000, at the beginning of 2005. The number of other healthcare professionals was steadily decreasing and reached 96.7 per 10 000 in 2005. Of this, nursing personnel represents 74.5 per 10 000. Mainly due to emigration, low salaries and falling prestige of medical profession, there is already a shortage of physicians and nurses.

The number of hospital beds is falling too, but it remains high. At the end of 2005 there were 27 727 hospital beds or 81.5 per 10 000 (28 972 hospital beds or 84.6 per 10 000 in 2004). The number of nursing hospital beds has grown but their territorial distribution is not adequate.

General government indicators

In 2005 revenues of the national budget (the state and municipal budgets) including EU assistance funds amounted to EUR 4.773bn (LTL 16.480bn), of which the state budget accounted for 86% and the municipal budgets made up 14%. It is planned that the national budget revenues, including EU assistance, will grow by 18.5% and amount to EUR 5.375bn (LTL 18.560bn) in 2006.

In 2005, revenues of the consolidated central government budget amounted to EUR 5.9bn (LTL 20.371bn). The central government budget deficit stood at 1% of the projected 2005 GDP. The consolidated central government budget comprises the state budget, social insurance funds (the State Social Insurance Fund (Sodra) and the Compulsory Health Insurance Fund) and extra-budgetary funds, including the Privatization Fund, the Guarantee Fund, the Reserve (Stabilization) Fund, the Ignalina Nuclear Power Plant Closure Fund), the 1990 Blockade Fund, and the Deposit Compensation Fund.

General government tax revenue (general government comprises the sub-sectors central government, state government, local government, and social security funds) stabilized in 2001 after a slight increase in previous years and stood at 28.7% of GDP in 2004 (32.3% in 1998). Lithuania's indicator was below the EU-25 average of 40.7% and the NMS-10 average of 35.2% (Eurostat 2006). The level of public sector expenditure in Lithuania was falling in recent years. In 2005 total public sector expenditure accounted for 33.7% of GDP, a decrease from 39.2% in 2000. This downward trend in public sector expenditure is attributed to a strict policy of reducing the fiscal deficit, a rapid GDP growth, and continued privatization. In comparison, total government expenditure stood at 47.6% in EU-15 and 42.1% in EU-10.

Revenues of the state social security fund, financed with a 34% payroll tax, amounted to EUR 1 704bn (LTL 5 884bn) and made up 29% of the consolidated central government budget. The total amount of social security contributions transferred to private pension accounts was EUR 72.4m (LTL 250m). In 2005 individuals could transfer 3.5% of their social security contributions to private pension accounts, and this proportion was raised to 4.5% from 2006.²²

Revenues of the compulsory health insurance fund, which is financed with 30% of personal income tax and 3% of social security contributions, totalled EUR 0.684bn (LTL 2.361bn) and accounted for 11.6% of the consolidated central government budget.

²¹ 40.3 per 10 000 people (1990-2004 average), (UNDP, 2005).

²² In 2005 a total of 700,000 individuals or 58% of the insured in the state social security fund had contracts with pension funds.

Composition of expenditures by main items

In 2004 national (state and municipal) budget expenditure amounted to EUR 4.217bn (LTL 14.561bn). State budget expenditure accounted for 70% of the total national budget expenditure. The national budget expenditure was divided as follows: 19.9% for economics (economics and housing and public utilities), 41.3% for social affairs (education, healthcare, social security and recreation, culture and religion) and 38.8% for other government functions (general public services, defence, public order and safety, and environmental protection). The proportions of expenditure on economics (12.1% in 2000) and that on other government functions (37.1% in 2000) grew in recent years. Government spending on economics is also increasing in absolute terms (as a % of GDP). In 2004, national budget expenditure on economics totalled EUR 838.706m (an increase from EUR 332.432m in 2000). Expenditure for education accounts for the biggest share, one-fourth, of all national budget expenditures by function, but it has fallen steadily since 2001, when it stood at 29.9%.

In 2005 government expenditure on social protection in Lithuania made up 10.1% of GDP. In comparison, the EU-25 indicator for 2004 was 18.9%. Government spending on health and education comprised 4.3% and 5.4% of GDP, while the respective EU-25 indicators were 6.4% and 5.3% (Eurostat 2006). Lithuania's 2005 total government expenditure on economic affairs accounted for 3.6% of GDP, compared to 3.9% in EU-25 in 2004.

Table 2. State and municipal budget expenditure by function

Expenditure	2004 Lithuania	2006 (Projection) Lithuania
Economics	20%	25%
Economics	19%	24%
Housing and public utilities	1%	1%
Social affairs	41%	39%
Education	25%	20%
Healthcare	2%	6%
Social security	10%	10%
Recreation, culture and religion	4%	3%
Other government functions	39%	36%
General public services	23%	20%
Defence	6%	6%
Public order and safety	8%	7%
Environmental protection	2%	3%

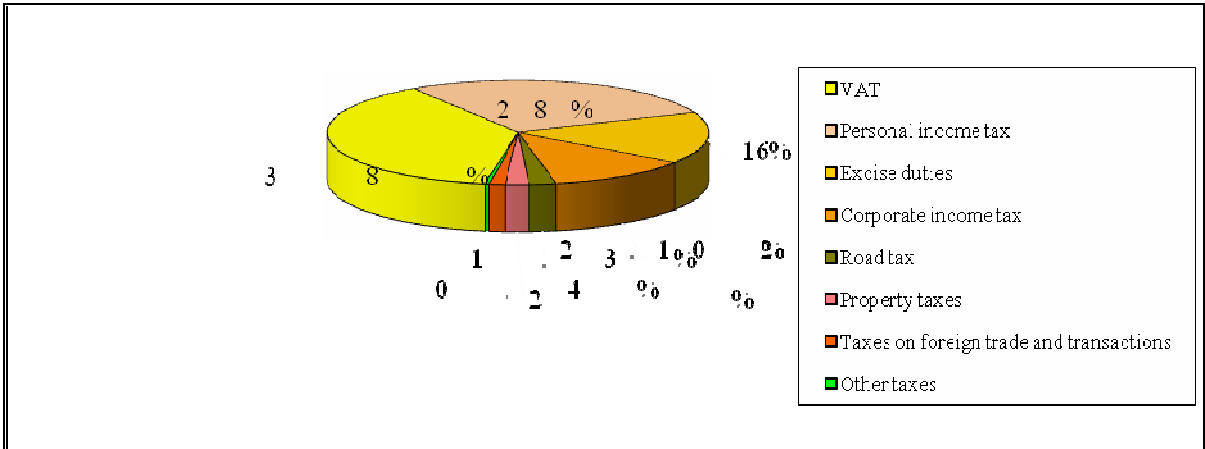
Source: Ministry of Finance of the Republic of Lithuania

Composition of revenues by main items

In 2005 tax revenues accounted for 89% of the national budget excluding EU assistance funds and 78.3% of the national budget with EU funding. EU assistance funds (EUR 0.585bn) accounted for 12.3% of the national budget, up from 10.1% in 2004. Non-tax-revenues comprised 11% of the national budget excluding EU assistance funds and 9.4% of the national budget with EU funding. Of the 11%, proceeds from goods and services (facility rent, education fees, stamp duties, consular fees, etc.) made up 4.9%, while capital revenues comprised 3.2%.

The largest sources of tax-revenues are VAT, the personal income tax, excise taxes, and the corporate income tax. Tax revenues from all major tax sources are growing.

Figure 4. Composition of tax revenues of the national budget in 2005



Source: Ministry of Finance of the Republic of Lithuania, 2005

The personal income tax in 2005 made up 27.7% of total municipal budget revenues. This tax was cut from 33% to 27% starting from July 2006 and will be further lowered down to 24% from the beginning of 2008. The top statutory personal income tax rate was 41.1% in EU-25. Lithuania has the fourth lowest personal income tax in the whole of the European Union, falling behind Slovakia with 19%, Latvia with 25% and Estonia with 24%.

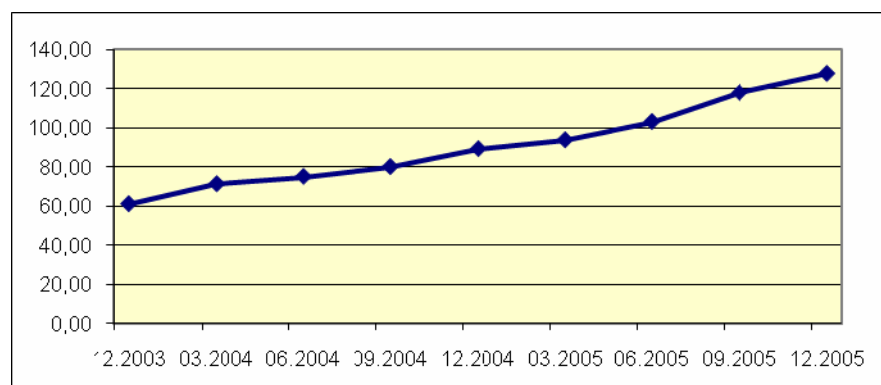
Property taxes, including land, inheritance and real estate taxes, accounted for 1.7% of total national budget revenues. All proceeds from property taxes go to the municipal budgets. For municipal budgets, they represent the second largest source of proceeds, 10.8%, after the personal income tax.

General ICT usage indicators

ICT usage is showing a remarkable growth and the trend is towards continued growth. This can be explained by an unsaturated domestic market and a low-level utilization of modern technologies in households and in the public sector.

Mobile penetration in Lithuania is growing rapidly. The total number of active mobile telephone subscribers rose from 3.5 million at the beginning of 2005 to 4.4 million at the end of quarter II of 2006, reaching 130 subscribers per 100 people (Information Society Development Committee, 2006). In 2005 mobile penetration in Lithuania grew the most of all EU-member states, the European Commission reports (European Electronic Communication Regulations and Markets 2005 (11th report)). The annual growth was estimated at 37%, which was the fastest growth in EU-25. According to Informa Telecoms&Media, a leading provider of business intelligence to global telecoms and media markets (Informa, 2005), Lithuania ranks first in the world in terms of mobile penetration. According to Eurobarometer, across the European Union (EU) as a whole, mobile phone penetration has reached almost 93%. According to the Communications Regulatory Authority, the number of fixed line subscribers has stabilized, but a minor decline is still being observed. At the end of 2005 there were 801.11 thousands fixed telephony lines, down from 820.00 at the beginning of the year. The penetration rate for fixed telephony was 23.5 lines per 100 people in 2005. Driven by sharp competition, the telecommunications market has experienced a rapid decrease in prices. In 2005, ten active providers of mobile communication and 40 for fixed telephony were operating. A number- portability service is fully implemented.

Figure 5. Active mobile telephone communication subscribers per 100 people



Source: Communications Regulatory Authority of the Republic of Lithuania, 2006

Computer usage and access to the Internet is expanding rapidly. ICT penetration in Lithuania is rising the most in households and business. As the Information Society Development Committee reports, in 2005 every third household had a personal computer, compared to 28.1% in 2004 and 5.3% in 2000. In the business sector, the overall ICT penetration is higher in services and trade compared to industrial sectors. At the beginning of 2005 nine out of ten manufacturing enterprises and companies in the services sector with the staff 10 and more used computers in their daily work. In terms of company size, ICT usage is the lowest in small enterprises with 50 and fewer employees. Eighty-nine percent of small companies and 99% of medium-sized companies (50 to 250 employees) used computers in early 2005. All large companies use computers in their work.

The number of computers and Internet usage in educational establishments is growing, but the proportion of computers used for educational purposes fell over the past year. Computers are used for teaching purposes most widely in general schools: 78% of all computers. In comparison, this indicator is 66% for vocational schools, 68% for professional colleges, 64% for colleges, and 52% for universities. The number of computers per student is increasing quite negligibly, with the exception of professional schools. In 2004-2005 the number of computers used for teaching purposes was 4.6 per 100 students in general schools, 7.2 in vocational schools, 19 in professional colleges, 6.3 in colleges, and 5.3 in universities.

Over the past few years there has been, and continues to be, a relatively rapid advancement of new technologies in healthcare sector. However, modern technology is concentrated in county or university hospitals. Meanwhile, the situation in the majority of national hospitals is bad. There is an acute shortage of computerised workplaces in the majority of healthcare institutions and a large proportion of the existing equipment is obsolete. According to statistics, in 2005, 94% of healthcare institutions having 10 or more employees had personal computers (PCs). In 2005 all country hospitals, 93% outpatient service providers, and 78% of dental practice were equipped with PCs. However, in general in healthcare institutions there were only 9 PCs per 100 employees and only over 18% of employees used PCs in their work.

Government institutions are lagging behind the business sector in terms of IT usage. Data shows that 72% of employees in public administration institutions used computers at the beginning of 2005.

During 2005 the number of Internet subscribers doubled and reached 1.078 million, or 31.7 subscribers per 100 people, the Communications Regulatory Authority reports. By the end of quarter II of 2006 there were already 1.44 million internet subscribers (Information Society Development Committee, 2006). The European Commission reports (European Commission, 2005) that every third person in Lithuania uses the Internet on a regular basis (at least once a week). In terms of this indicator (30%) Lithuania outstrips Greece (18%), the Czech Republic (26%), Cyprus (26%), Italy (28%), Portugal (28%) and Poland (29%). However, internet penetration is by 14 percentage points lower than average internet penetration in European Union (EU). In 2005, 32.4% of population aged 15 to 74 used the Internet, and almost 22% of the population uses the Internet regularly. At the end of quarter II

of 2006 a total of 79% of internet subscribers in Lithuania connected to the Internet via mobile radio communication network, 9.3% connected via xDSL, 4% connected via LAN, and the remaining used other connection modes. In terms of private usage, a total of 14.4% of households had access to the Internet in the first quarter of 2005, an increase from 10.6% on year and 2.3% in 2000. In comparison, 40% of European Union households have access to the Internet (ISP Review 2006). However, there is a wide gap between urban and rural indicators. In the first quarter of 2005 every fifth urban household had access to Internet compared to four in one hundred in rural settlements. (In 2005, 40% of urban dwellers used the Internet compared to 18% of rural inhabitants.) The ongoing state-run rural internetization project is expected to help bridge this gap. The Information Society Development Committee predicts that about 65% of Lithuanian population will use the Internet and 56% of households will have access to the Internet in by 2010.

In the enterprise sector, a total of 85% of manufacturing and services companies (or 93% of companies possessing computers) had access to the Internet, an increase from 80% a year before, the Information Society Development Committee reports. Just like computer usage, Internet usage is the lowest in small enterprises with 50 and fewer employees, 81%. For medium-sized companies (50 to 250 employees) this indicator is 98%. Some 77% of enterprises used the Internet for banking and financial services. In 2004 there were a mere 6% of enterprises which pursued sales on the Internet and 15% that bought goods and services electronically. Broadband access in the enterprise sector stood at 57% in 2005.

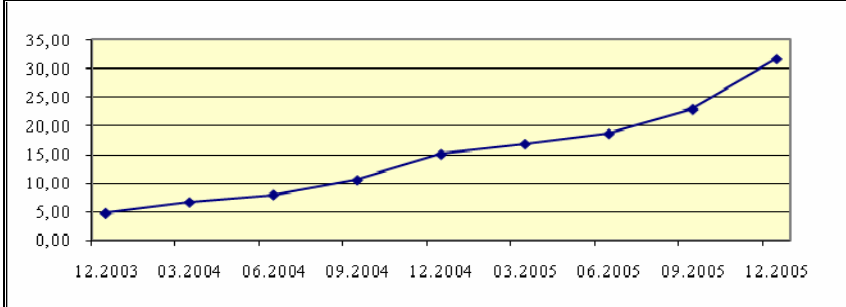
The proportion of computers with Internet connection in educational establishments is growing. It stands at 71% in general schools, 85% in vocational schools, 84% in professional schools, 89% in colleges, and 96% in universities. In recent years the biggest growth in Internet connection was recorded in general schools.

Regardless of the fact that nearly all of the country’s medical institutions have 24-hour access to the Internet, there still remain a very small number of computerised workplaces connected to the Internet. According to the data, in 2005, 91% of healthcare institutions used the Internet. Seven from nine PCs per 100 employees of healthcare institutions had the Internet connection. However, only 15% of the employees used the Internet in their work.

According to the Information Society Development Committee, the proportion of public institutions providing electronic access had reached the EU level and comprised 80% at the beginning of 2005. Public institutions with their own websites accounted for 60%. Data show that 60% of employees in public administration institutions used the Internet. Fixed broadband access was estimated at 66% in 2005. In 2005, half of all state and municipal institutions provided services on the Internet, up from 33.5% in 2003. The level of transposition of basic public services to the electronic environment in Lithuania stood at 64% in 2005, up from 50% in 2004, the Information Society Development Committee reports.

In the third quarter of 2005 there were 109 internet access providers, up from 60 in 2004. In 2005 there were about 700 public Internet access points in Lithuania. Of these, as many as 300 public Internet access centres were opened in rural areas in 2005.

Figure 6. Internet subscribers per 100 people



Source: Communications Regulatory Authority of the Republic of Lithuania, 2006

The broadband penetration rate (subscribers per 100 people) reached 8.5% at the end of quarter II of 2006 (Information Society Development Committee 2006). The New Member states have an average broadband penetration rate of 12%. The Information Society Development Committee projects that Lithuania will reach a broadband communication penetration rate of 52% by 2010. Broadband communication provided via xDSL technologies constitutes less than 50% of the market in Lithuania, and the share of the broadband communication market provided with other technologies is 57%, the highest indicator in the EU-25. During 2005 the number of internet subscribers using broadband communication technologies went up by 81.4%. By the end of quarter II of 2006, a total of 20% of all internet subscribers used broadband technologies for internet access (Communications Regulatory Authority of Lithuania, 2006). As recent EC report (European Commission, 2005) notes, technological competition in the broadband communication market in Lithuania is the most intense in the whole EU.

I DESCRIPTION OF CURRENT GOVERNMENT AND HEALTH INSTITUTIONS AND SYSTEMS AT NATIONAL AND REGIONAL LEVELS

I.1 Structure of public administration

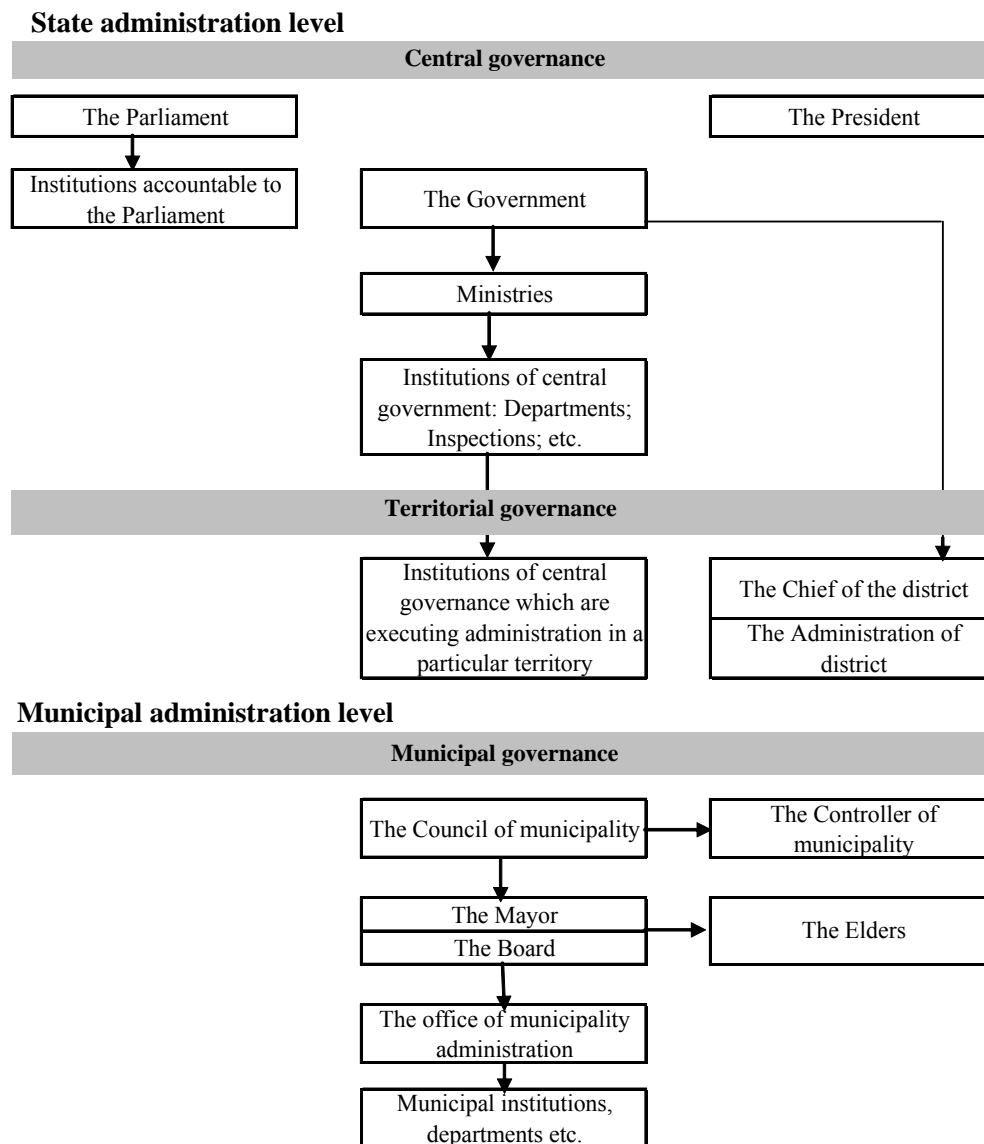
The basic principles of the institutions of country governance are defined by the Constitution of the Republic of Lithuania. The Public Administration law defines the principles of work of the entire public administration sector, and different laws, such as the Law of Government, the Law of County Governance, etc., define the main tasks and responsibilities of separate public administration subjects.

The entire public administration sector can be divided into two levels: state administration and municipal administration. There are two subsystems in the state administration level - central and territorial administration. Central administration consists of those institutions which execute administration in the entire country. The Parliament, institutions accountable to the Parliament, the President, the Government, various governmental institutions, such as departments, inspections, etc., are defined as central administration subjects. The main responsibility in this sublevel is formation and implementation of government policy, administrative control and regulation of activities of territorial institutions.

Territorial governance consists of the departments of central governance that execute administration in a particular territory of the country which does not necessarily coincide with the territory of the county. The main function of those institutions is direct implementation of government policy in the particular region of the country. The chief of the county and the administration of the county are also part of territorial governance executing their power strictly within the county's territory. The main task for county governance is to execute state policy in the areas of education, healthcare, social security, territory planning and some others.

Municipal administration level consists of the Council of municipality, the Controller of municipality, the Mayor, the Board, the Elders, the office of municipality administration and municipal institutions, departments, etc. This level of public administration puts into practice the principle of self-governance. Municipal and territorial administration institutions are the ones forming regional policy.

Figure 7. The organigram of public administration in Lithuania



I.2 Institutional structure and functions of general government

The Government is a political institution that unites the Prime Minister and the Ministers of 13 Ministries. The main responsibilities of the Government are:

- Executing laws, implementing national programmes, presidential decrees;
- Preparing new draft laws;
- Guaranteeing security and public order;
- Executing foreign policy;
- Preparing a draft of the state budget, executing the budget;
- Taking care of state property;
- Coordinating the work of ministries and other government institutions;
- Establishing and terminating government institutions;
- Organizing the work of higher offices of administration.

The Government is subordinated to the Parliament. Every year the Government must report to the Parliament on the government programme's implementation. Every Minister directs a Ministry. There are 13 Ministries in Lithuania: the Ministry of Justice, the Ministry of Education and Science, the Ministry of Health, the Ministry of Foreign Affairs, the Ministry of National Defence, the Ministry of Environment, the Ministry of Transport, the Ministry of Finance, the Ministry of the Interior, the Ministry of Social Security and Labour, the Ministry of Economy, the Ministry of Culture, and the Ministry of Agriculture.

Every Ministry has its own strictly defined functions and structure. But the main functions for all Ministries are as follows:

- Formation of national policy and finding out the best means of its implementation;
- Coordination and control of offices accountable to the Ministry and departments and sections within the Ministry.

Each department within the Ministry is responsible for implementation of one of the functions of the Ministry. The same applies to sections in each department.

The Minister, as a head of the Ministry, is the chief of all departments and sections, directing them through Vice Ministers or Secretaries of the Ministry. The head officials of departments or other institutions responsible to the particular Ministry are subordinated to the Vice Minister or the Secretary of the Ministry.

Government establishments are usually created to perform functions that are not overtaken by any Ministry. Such institutions are usually directly subordinated to the Prime Minister. But the Prime Minister can delegate the supervision to one of the Ministers.

There are two categories of the officials in public administration: political officials are coordinated by the Chancellor of the Government and career officials are coordinated by the Secretary of the Ministry.

There is a possibility for a governmental institution to create territorial departments which are responsible to the institution it was established by. These institutions are not subordinated to the Chief of the county even though they must inform the Chief about their activities.

Every institution subordinated to the Ministry should report about the implementation of the government's program to the Secretary of the Government. Every department subordinated to the Government reports to the Chancellor of the Government and every Ministry reports to the Government. The Government gives annual reports on the government programme's implementation to the Parliament.

1.3 Institutional structure and functions of territorial governance

Regional policy is mainly formed in territorial and municipal public administration institutions.

The governance of Territorial County is organized by the government. There are 10 counties of the size varying from 131 481 to 848 555 inhabitants in Lithuania. The executors of government policy in the county are: the Chief of the county, the Administration of the county, institutions of particular ministries and government.

The main tasks for the governance of the county are:

- To execute government policy in the following fields: social security, education, culture, healthcare, territorial planning, use and security of the land, cultural heritage preservation, agriculture, environmental security, and some other areas;
- To implement national and regional programmes in the county;
- To coordinate the activities of the governmental institution acting in the territory of county as well as municipal activities in implementing regional programmes;
- To create development programmes for the entire region.

The Chief of the county is subordinated to the Government and is responsible for implementation of government policy in the particular county.

The Administration of the county usually consists of eight departments: countryside affairs; land organizing; social affairs and education; development of the region; civil security; law; accountancy and finance; and the county's physician service. Each department has some sections, responsible for administrating particular fields.

The county is the main territorial subject responsible for the implementation of economic and social development in the region. It is responsible for choosing the best means for executing the policy of development.

County administration and municipal administration have to coordinate their activities as far as municipal administration is responsible for all kinds of developments in the municipality. Thus, the department for regional development unites representatives from municipalities within the county and is the main coordinator of the policy of a particular region's development.

I.4 Institutional structure and functions of municipal governance

There are 60 municipalities with the average representative population of 38 000 inhabitants in Lithuania. However, the population of different municipalities varies markedly (30 – 600 thousand).

The institutions of municipality are:

- Representative – the Council formed by elected representatives;
- Executive – the Mayor and the Board;
- Control – the Controller of municipality.

The Council of the municipality has the following major functions: to adopt decisions regarding municipality's territorial division; to approve the prices of services rendered by municipal enterprises; to set local levies; and to approve the municipal budget.

The Elder is the chief of the smallest territorial area. The main functions delegated to this administrative unit are as follows: the Elder calls the meetings of the area's inhabitants; gives certificates to the inhabitants concerning their social status; runs certain important functions; collects statistical data and performs other functions delegated by the Mayor.

According to research by "Baltic Surveys" and "Public Administration in Lithuania: Review of 2006", municipal institutions are the ones that people trust and mostly communicate with. The data shows that 15% of respondents had applied to municipal institutions during the last 12 months, while only 6% applied to ministries and county institutions and a negligible 1% of respondents applied to the Government, the Presidency and the Parliament. Nevertheless, the Presidency and the Municipality are the most trusted institutions. 57% of those who applied to any public institution did that with a goal to get information and 53% willing to get a public service.

Municipal institutions have a direct control (the right to initiate, negotiate and implement the issues) on the major part of people's everyday life events such as pre-school education, institutions providing social services, organization of public, seasonal work, assurance of public order, etc.

The municipality's budget is formed from local taxes and government transfers. Government financing is allocated for the following areas of activities - agriculture, protection of children's rights; calculating and paying compensations and social payments; guaranteeing favourable terms of transportation; and some other functions related to educational activities.

Another portion of revenues of the municipal budget consists of these taxes and levies: the income tax; the property tax (land tax; inheritable property tax; real estate tax paid by enterprises and organizations); the commodity and services tax (state levies when the office providing services is supported from the budget of municipality; local levies are defined by law and paid mostly for various permissions for activities, parking, assembling and cleaning the communal wastes; the environment pollution tax).

I.5 Citizen/business/civil organizations involvement in governance and decision making

According to the Constitution of the Republic of Lithuania, the sovereignty of the state belongs to citizens. They execute their power directly or through their representatives. The citizens' right to participate in the governance is guaranteed by international and local laws, resolutions of the Government and other legal documents.

The most visible citizens' participation in the governance is at municipal level, which is the closest institution and has the greatest influence on everyday life of the municipality's citizens.

Thus, citizens in the municipality have the right to participate in the process of territory planning. They have the right to send their proposals to the institutions responsible for planning. The right to submit proposals is also valid when the administrative procedures having a direct impact on society are planned to be changed.

According to the Law of Municipalities, a municipality must guarantee its citizens the right to participate in the process of preparing the drafts of upcoming decisions. Citizens have the right to get all the information about decisions taken and actual projects and the right to initiate a public opinion poll in the municipality.

Starting from 2000, local societies (this is usually a society at the smallest territorial administrative level) have the right to elect their representative who will represent their interest in the Council of Municipality. But only 56% out of 43 municipalities that participated in the poll have already adopted and implemented this citizens' right. Representatives of local communities are involved in the decision making process in the Council and various specific working groups. The influence of local communities' participation usually depends on the activity and responsibility of the Elder, the chief of the administration of the smallest administrative territory.

At central government level, all draft laws are publicly available. Thus, associations and all other organizations have the right and possibility to participate in the process of debates in the committees of the Parliament.

Citizens have the right of petition, participation in political parties, non-governmental organizations, etc. 50 000 citizens organised together have a legislative right. They have the right to propose a draft law and a total of 300 000 citizens have the right to initiate changes to the Constitution.

Every citizen aged 16 or more has the right to petition. The petition is a document which offers solving particular problems in state laws.

The questions concerning the Constitution or the country's participation in international organizations or unions are resolved through a referendum.

According to the data from "Public Administration in Lithuania: Review of 2006", only 6% of respondents who had applied to any public institution did that with an intention to provide proposals on how to improve the institutions' work, etc. Active participation in the governance aiming to influence the decision making process does not seem to be sensible for the people. Only 16% of respondents think that it is worth trying to give proposals on pressing issues to any lever of the governance, and as much as 55% think that it is not worth trying. They are of the opinion that officers do not try to accept and discuss their proposals or that officials do not pay attention to them at all. This shows that there is no active dialogue between the people and the institutions working for them.

Table 3. Turnout of voters in recent elections

Elections	Turnout
Elections to the Parliament of the Republic of Lithuania, 2004	46%
Elections to the Councils of Municipalities, 2004	58%
Elections of the President of Republic of Lithuania, 2004	48%

Source: Central Electoral Committee of the Republic of Lithuania

I.6 Policy strategies adopted by the government for modernizing public administration

According to the Long-term Development Strategy of the State (Parliament Resolution No IX-1187, 12 November 2002), the most considerable attention is paid to “Better regulation”, “Human Resource Management”, “Innovative Public Services” and “eGovernment”. The aim is to create a transparent, effective, result- and customer-orientated public sector, based on informational technologies.

Five main directions for the public sector’s improvement have been underlined:

- Implementation of eGovernment;
- Modernization of activities of the Government and governmental institutions; ensuring the transparency of public administration procedures. To modernise the public sector according to the principles of management. The number of public administration functions should be optimised. The number of public officials and institutions should be decreased and some public functions must be delegated to the private sector.
- Improvement of the functions of central, regional and local governance. The main plans are to concentrate the administration of similar issues in one institution; to separate more properly the functions of central, regional and local governance.
- Development of municipality. The main activities in ensuring this priority are the following: ensuring the possibility for inhabitants to participate in solving the issues of their community; functions which can be run without the supervision of central government must be delegated to the municipality.
- State officers’ training. The results to be achieved are as follows: individual responsibility for the actions made; a stable and professional office, a possibility for public officials to study languages and improve other professional skills.

According to the Chapter 3 and Paragraph 3 of the Long-term Development Strategy of the State, a strategy for the development of public administration until the year 2010 was approved in 2004. The plan of measures (for the year 2005-2006) for implementing the strategy was approved in 2005. Most of the measures focus towards describing and analysing the recent situation and preparing the strategies and guidelines for the upcoming plans. The measures for the year 2007-2010 are about to be prepared and approved after 1 July 2006.

I.7 The recent policy and institutional reforms

Since 1990, a number of institutional reforms have been conducted that changed the number of ministries, the last one was carried out in 2000 and approved 60 municipalities.

In 2003, the Government adopted a conceptual framework on decentralization and de-concentration of functions of central governance. At the first stage, the following changes were made: vocational education schools were changed into centres for professional studies; functions of pedagogical psychology in the Ministry of Education and Science were delegated to the offices of pedagogical psychology in municipalities; the administration of county was ascribed certain functions of founders of libraries and several functions in the area of public and personal healthcare; municipalities were

given some functions in the area of organization of land exploitation. The next two stages will last until the year 2010.

In 2005, a failed attempt has been made at establishing a ministry for the information society related issues, which was opposed by the President of Lithuania.

An initiative for direct election of mayors of the municipalities is currently debated. This change is intended to encourage accountability, involvement of citizens, etc. At the moment, the mayor of municipality is elected by the council of municipality.

The Ministry of the Interior conducts a project “Examples of a good practice”. The aim of the project is to motivate those who already made good reforms and to encourage those who are just getting ready for reforming. A special commission is choosing the best reforms in the sector of public administration. The following reforms have been evaluated as the best examples:

The “One stop-shop” system in the municipality of Vilnius. The aim of this reform is to improve the efficiency of public services. All municipality divisions were located in one building. The department of attendance of visitors was established. The computerised system of managing of the documents was implemented. The results were increased efficiency of services provided.

Integrated services of healthcare and social security in the county of Panevezys. The aim was to integrate two services – those of social and healthcare - because social services and healthcare are directed by two different ministries and it is very often the case that people who need social services at the same time need healthcare services, too. The creation of public institution called “integrated health services centre” improved the number of social services at home. The principle of partnership among governmental and municipal institutions and public establishment was introduced. This helped to avoid the recurrence of the same services at different levels of administration and improved the coordination of services provided. Because of an increase in out-patient social and healthcare services, the expenses of the health insurance can be saved. The municipal and governmental budget can be saved, too. The number of users of such integrated services is rising and the initiators continue to improve the project by looking for various means of financing, etc.

I.8 Structure of the health system governance

The Law on Health System (Parliament of the Republic of Lithuania, 1994) defines the structure of the Lithuanian National Health System (LNHS), legal regulation of healthcare, organization and management of individual and public healthcare, rights and duties of the subjects of health activities. According to the law, the LNHS consists of state and municipal individual and/or public healthcare institutions and enterprises, accredited for certain types of health activities and having concluded health services contracts with the Patient Funds. It means that private enterprises, providing healthcare services to population but not having contracts with the Patient Funds, are not subjects of the LNHS.

Organization of the LNHS activities is divided into three levels: municipal, county and state. Healthcare is also divided into three levels: primary, secondary and tertiary.

State health policy is implemented:

- By the **Parliament** which is responsible for legislation and parliamentary control. At the Parliament, healthcare policy issues are assigned to the competence of the Committee on Health Affairs. The National Health Board, the institution accountable to the Parliament, is responsible for healthcare policy and intersectoral collaboration and co-ordination of public health-related issues. The board functions as an advisory body in the Parliament.
- By the **Government** through the Ministry of Health. The Ministry of Health (MoH) is responsible for general supervision of the entire healthcare system. It drafts legal acts and issues regulations of the sector. It also runs 9 healthcare facilities among which are two major teaching hospitals. In order to strengthen drug prevention and drug control policy, the Department on Drug Control was established at the Government in 2003.

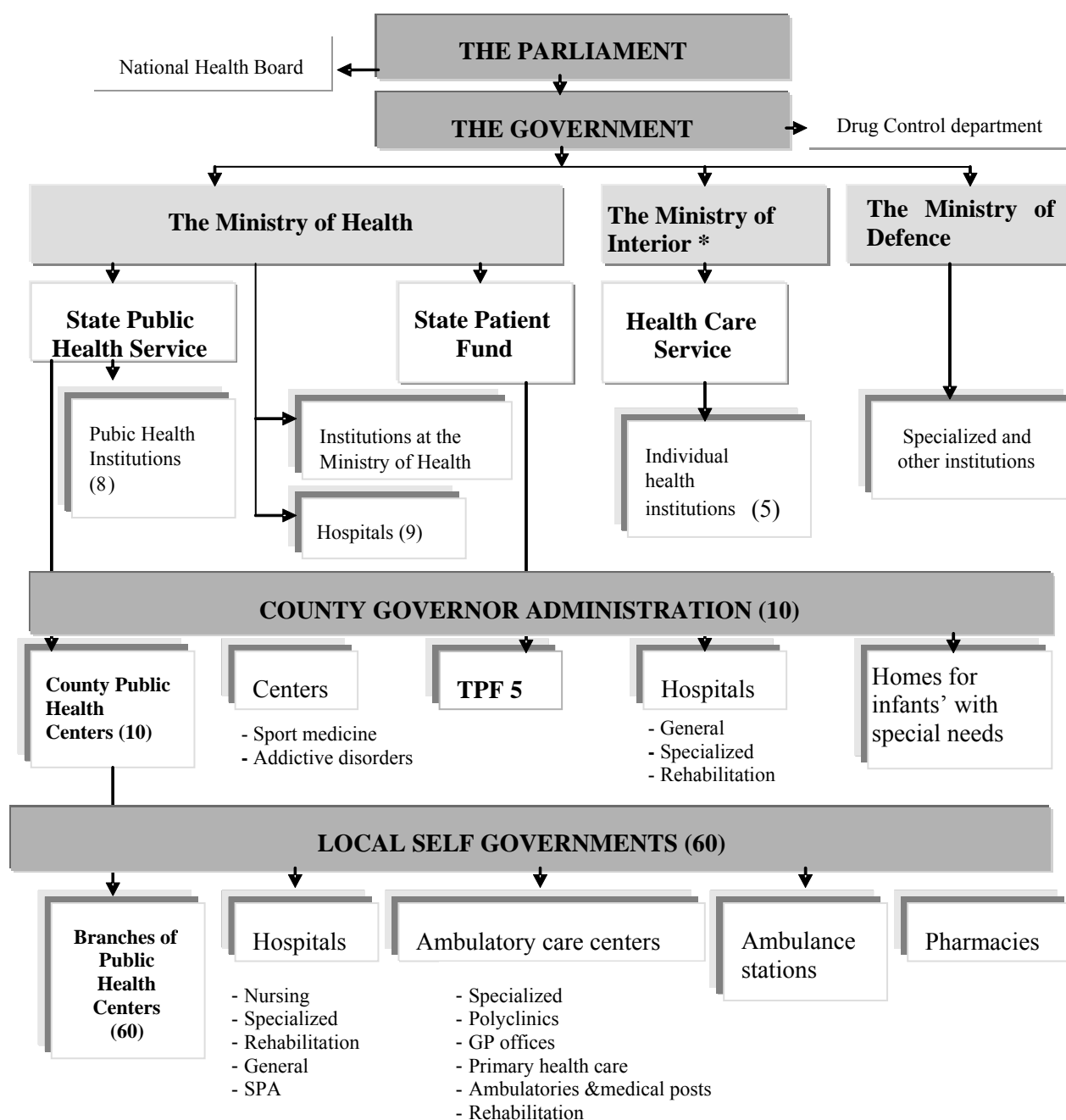
The main functions of the Ministry of Health:

- Licensing healthcare personnel and keeping the register of medical professionals;
- Licensing of public and private institutions upon their request – through the State Accreditation Agency under the MoH;
- Establishment of medical standards and quality control of healthcare providers through the State Medical Audit Inspectorate under the MoH;
- Regulation of pharmaceutical sector through the State Medicines Agency and the Pharmacy Department under the MoH;
- Regulation of expenditure on public capital investment;
- Regulation of public spending on healthcare services through the State Patients' Fund under the MoH and 5 territorial branches;
- Regulation of public health. Through the State Public Health Service, it manages the public health network, including 10 county public health centres with their local branches (50 institutions in total).

The Ministry of the Interior, the Ministry of Justice and the Ministry of Defence are responsible for healthcare within their domain. They define the scope of healthcare services in health institutions which are subordinated to these ministries.

- By **municipalities**. They are responsible for organization of primary healthcare, however, organization arrangements are defined by the Government. Municipalities also implement secondary care, the scope and type of which are defined by the Ministry of Health. Municipalities are engaged in running small and medium sized hospitals within their localities in accordance with legislation which delegated this function to them. Healthcare activities are managed and coordinated by the Municipality Physician. However not all municipalities have this position.
- By the **County Governor Administration**. It is responsible for organization of individual healthcare and public health. The scope and type of care are also defined by the Ministry of Health. Healthcare activities are managed and coordinated by the County Physician. Decision-making at this level requires participation of the Ministry of Health.
- By **NGOs**. There are a lot of specialised professional societies of physicians, dentists, pharmacists, and public health specialists. The biggest associations of medical professionals are: the Chamber of Physicians and the Association of Medical Professionals. There are also a number of patients' organizations. However, consumers still maintain the weakest position in shaping healthcare policy in the country.

Figure 8. The organigram of the health system administration in Lithuania



* Until 2003 the Department of Prisons was under the responsibility of the Ministry of the Interior. Currently this responsibility is shifted to the Ministry of Justice.

I.9 Healthcare delivery

I.9.1 Primary healthcare

Primary healthcare as a separate sector is a new concept in Lithuania. The general practitioner's role, including a gate-keeping function, was defined and programmes of training and retraining of general practitioners and allied personnel were started in 1996. Primary healthcare services are delivered in

primary healthcare centres, general practitioners' offices, polyclinics, ambulatories and medical posts, nursing hospitals, as well as by ambulance service (stations and divisions). If a trained general practitioner is employed by the institution he or she delivers primary healthcare services to all members of the family. If a qualified general practitioner is missing in the institution, then primary healthcare services must be provided by a **team of doctors**: internist, paediatrician, surgeon and gynaecologist-obstetrician.

Mental health centres are also established in each municipality. The entire network of primary healthcare institutions is administered by municipalities. In addition, primary care is provided in practices of private physicians. Lithuanian residents have to choose a primary care facility where they wish to receive primary care. Patients require a referral signed by the physician performing the role of their general practitioner in order to receive specialist's care. In absence of referral, services must be paid for by patients themselves. The vast majority of healthcare facilities are publicly owned, but there are plans to privatise primary care.

According to the data of the Lithuanian Health Information Centre, the following institutions are responsible for provision of primary care services:

- Outpatient institutions subordinated to municipalities:
 - *Medical aid posts*. They are based in rural areas and employ mainly 'feldshers'.²³ In 2005, there were about 839 such centres in rural areas of Lithuania. They provide some routine care, first aid and emergencies, home nursing and also supply non-prescription drugs. Most of these centres are administratively linked to ambulatories.
 - *Ambulatories* are mainly located in small towns. They include a general practitioner or an internist, a midwife, a dentist and a paediatrician. Some ambulatories are administratively linked to polyclinics. There were 183 ambulatories across Lithuania in 2005.
 - *Polyclinics* employ different kinds of specialist physicians. They are responsible for almost all primary and secondary outpatient care. There were 88 polyclinics over the country in 2005. Many polyclinics have been renamed as primary healthcare centres during the primary healthcare reform.
 - *General Practitioner (GP) offices*. In 2005, there were 1730 GPs in the country. According to data of the State Patient Fund, at the end of 2002, 47.5% of the population were served by GPs, while at the end of 2004 – 66% of the population were served by GPs. Distribution of GPs over the country is uneven.
 - *Mental health centres*. There are 73 such centres in the country – one or two in each municipality. Eight of them are private.
 - *Ambulance stations/units*. In 2005, there were 42 ambulance units, 3 of them were private providers. At the end of 2004, there were 258 ambulance teams compared to 271 ambulance teams in 2002. Average number of inhabitants served by one ambulance team is slightly increasing – 12.8 thousand inhabitants in 2002, compared to 13.4 thousand in 2004.
 - *Dental clinics*. The majority of such clinics are private entities. There were 928 private dental clinics at the end of 2005.
- Nursing hospitals and hospices subordinated to municipalities. The number of nursing hospitals is decreasing, however the number of hospital beds is increasing. This is the result of the recent policy according to which it is recommended to integrate nursing care into general hospitals. At the end of 2005, there were 59 nursing hospitals and 3527 nursing beds or 10.4 per 10 000 people (72 nursing hospitals and 3167 nursing beds or 9.2 per 10 000 people in 2003).

²³ Feldsher - was the name of medical auxiliaries that provided many medical services in the Soviet Union, mainly in rural areas. Trained in technical schools for shorter periods of time, they were supposed to work on preventive work and refer most serious cases to higher-level institutions. Source: Wikipedia.

Table 4. Number of doctors offering primary healthcare services

Year	GPs	Doctors team	Dentists	Psychiatrists
1998	230	3 059	1 180	200
1999	385	2 909	1 174	230
2000	692	2 368	1 141	264
2001	897	2 368	1 141	264
2002	1150	2 126	1 178	268
2003	1500	1 884	1 252	304
2004	1665	1 770	2 372	340

Source: Lithuania Health Information Centre; State Patient Fund; Ministry of Health²⁴

I.9.2 Public health

The State Public Health Service under the Ministry of Health is the main institution responsible for the implementation of public health policy. It consists of ten county public health centres (with 60 local branches subordinated to the centres). Through a number of institutions, the Service deals with communicable disease control, AIDS, immunization, food control, environmental health and occupational health. The main problems in the public health service include bureaucratic and financial constraints, a lack of intersectoral cooperation. In 2000, reorganization of public health institutions was started and is still under implementation. The national Public Health Policy Development strategy is under preparation.

I.9.3 Secondary tertiary care

In 2005, there were 159 hospitals in Lithuania. The number includes 67 general hospitals. General hospitals are categorised into four levels according to the range of services they provide. The first category consists of rural hospitals which are mainly responsible for providing nursing care. The second category consists of general municipal hospitals, responsible for inpatient treatment of common illnesses. The third category consists of county and city hospitals. The difference between these hospitals is only in their subordination. City hospitals are subordinated to municipalities and county hospitals – to County Governor Administration. The last category includes 7 teaching and 2 university hospitals, 29 specialised hospitals, which are designed for the treatment of cancer, infections, mental illnesses, tuberculosis and narcology. There were 27 727 beds or 81.5 per 10 000 inhabitants in Lithuania in 2005 (29 990 beds, or 87 beds per 10 000 inhabitants in 2003).

Although the number of outpatient consultations provided by physicians to patients is close to the EU average, the number of physicians and hospital beds per 100 000 inhabitants is one of the highest in the EU. The number of hospitalizations in Lithuania, compared to the EU average, is more than 25% higher (23.8 and 17.94 respectively) and the average duration of treatment in hospitals is fairly long (10.2 days in 2005).

I.9.4 Pharmaceuticals

Registration of drugs is a responsibility of the State Medicine Agency which is an agency of the Ministry of Health. The Law on Pharmacy requires the government to fix the retail price of medicines. Only prescribed drugs are reimbursed and reimbursement is only up to the reference price. Generic drugs are included in the positive list. According to the data of the State Medicine Agency, there were

²⁴ Implementation Strategy of Health Care Reform's Aims and Objectives (Ministry of Health, 2006). <http://www.sam.lt/en/sam/HP/healthcarestrategy/>

6475 pharmaceuticals registered in the country in 2003. 419 are produced by domestic manufacturers. Regional access to pharmaceuticals is a problem. In spite of a large number of chemists' shops (there were 1 100 chemists' shops in Lithuania in 2004) and a wide choice of pharmacies in cities, people living in rural areas face difficulties in purchasing pharmaceuticals. In response to this problem, the MoH has implemented a policy of supply of pharmaceuticals through primary healthcare centres (mainly ambulatories). The majority of pharmacies in Lithuania are private for profit enterprises.

In 2005, private expenditures of population for reimbursed pharmaceuticals amounted to about EUR 88.3m (including extra payments for reimbursed pharmaceuticals and expenditures of population paying a full price for reimbursed pharmaceuticals). This amount makes about 22% of total spending for pharmaceuticals sold via retail trade network. Growing private expenditures for pharmaceuticals reflect the dynamics of population needs. Growing household expenditures for personal healthcare and pharmaceuticals force citizens to seek in-patient treatment even in cases when such treatment is not necessary.

I.9.5 Healthcare finance and expenditure

The Lithuanian healthcare system is based on a compulsory health insurance scheme. The main national health insurance agency is the State Sickness Fund (SSF) and its five territorial branches. There are several private insurance companies offering some private supplementary insurance products, however, their impact on total financing of healthcare has been negligible so far.

The share of public sector expenditure in GDP has decreased since 1998, but in 2005 it went up and reached 4.1% of GDP. In the 2005 national budget expenditures on healthcare (including the state and municipal budgets and the mandatory health insurance fund) amounted to EUR 0.824bn, an increase by 19.9% compared to 2004. This was the first marked increase of healthcare spending during the past several years. Public healthcare expenditure per capita was EUR 241.3. The increase in expenditure was determined by the government's policy of increasing salaries for the employees of the healthcare system. In 2006 healthcare expenditures are expected to account for 6% of national budget allocations.

The mandatory healthcare insurance fund is the main source for funding healthcare. The main sources of the fund's revenue are: health insurance contributions (3% of the payroll tax); 30% of the personal income tax; earmarked contributions of self-employed individuals; contributions for the insured from the state budget; other revenues. In 2005, the fund's expenditure on healthcare amounted to EUR 0.728bn and accounted for 88% of the total public sector spending on healthcare.

Over the last few years the structure of the mandatory health insurance fund expenditure did not change significantly. In 2005 fund's expenditure for health care services constituted 67.6% of total expenditure; 19.7% - for reimbursement of outpatient drugs; 3.9% on rehabilitation services. In 2006, about 66% of total healthcare expenditure is allocated for healthcare services; 17.6% is planned to be allocated for reimbursement of outpatient drugs; 3.6 % on rehabilitation services, 5.1% on various health projects.

I.9.6 Payment of healthcare services

Recurrent expenditures of all healthcare institutions are financed from the State Patient Fund on the basis of annual contracts. Capital costs are financed from the state budget through the Public Investment Programme. Municipalities, as founders of healthcare institutions, may also provide additional funds from their own budgets.

Payments to hospitals are based on cost per case, with cases classified according to 50 groups of diagnoses based on 17 groups of ICD-10. The price per case is fixed by the MoH and is applied uniformly throughout the country. There is a ceiling on total payments by the fund. If all institutions increased their volume of services, the prices per case were proportionately reduced. In 1997-1998 there were no limits of services provision for healthcare institutions. Due to a sharp increase in spending, ceilings on services provided were introduced into contracts between healthcare institutions and territorial patient funds in 1999. In 2005, even stricter regulation of service volume control was introduced by an order the Minister. Explicit financial incentives have been introduced for healthcare institutions, not exceeding the limit of the volume agreed with the Territorial Patient Fund. Such order has raised big concern among population due to decreased accessibility to healthcare services.

Secondary outpatient services are reimbursed mainly on per case basis. Long term or nursing hospitals are reimbursed on a bed-day basis.

Reimbursement of primary healthcare institutions is based on the number of registered insured on an age-adjusted basis. In 2005, financial incentives for primary care institutions in the form of fee-for-service elements have been introduced.

I.10 Policy strategies for modernizing the health sector

The main goal of various healthcare reforms initiated in the past years was to adapt the system to a rapidly changing environment. The Government's political will on healthcare reform was expressed in the Lithuanian National Health Conceptual Framework, which was approved by the Parliament in 1991. Similar priorities, aims and objectives for the next 10 years have been described in the Lithuania Health Programme which was approved by the Parliament in July 1998. There are a number of other strategic documents, all of which underline the following main directions:

- To implement an active healthcare policy. This means that there should be more emphasis on prevention, including the development of healthy lifestyles, health promotion and health education of the general public.
- To restructure healthcare services so that they are oriented towards primary healthcare development and implementation of a general practitioner gate-keeping function.
- To decrease the role of the hospital sector, with substitution of inpatient services by outpatient care and social care.
- To increase productivity of providers of health services and to increase their orientation towards patients' needs through the implementation of a health insurance scheme.
- To introduce a democratic model of decision making by increasing the role of municipalities and districts, medical professionals, patients and the general public.

In 2004, the Implementation Strategy of Healthcare Reform's Aims' and Objectives (Ministry of Health of the Republic of Lithuania, 2004) for the period of 2005-2011 was approved by the Minister of Health. The strategy's implementation plan defines mainly the measures dedicated to the description and analysis of the recent situation and preparation of guidelines for further development. The Government Programme (Government of the Republic of Lithuania, 2006) for 2006-2008 is more concrete. Some of the main goals mentioned in the Programme: 1) to regularly issue public updates on healthcare services, fees and indicators of institutional performance. To make arrangements for the introduction of eHealth prescription, 2) to seek the implementation of compulsory third party insurance for medical institutions; 3) to increase funding for healthcare. To accelerate the restructuring of healthcare institutions and, to this end, identify the future needs for specialists, 4) to further increase salaries and social benefits for doctors and nurses. To pay more attention to training, re-training and skills development of nursing specialists; 5) to review and increase healthcare service charges by including actual depreciation costs related to medical equipment and premises; 6) to further develop IT-aided diagnosis for instant results and their assessment. To pool medical practitioners, researchers and business entities for the introduction and management of health and pharmacy related IT systems.

I.11 The recent policy and reforms in the field of healthcare

Since 1990, a number of various healthcare reforms have been implemented. The main of them are the following:

- 1990-1992. Decentralisation of public healthcare administration. Municipalities became owners of primary healthcare institutions and the majority of those of secondary care. Public financing of these institutions shifted to municipal budgets;
- 1993-1994. The gate-keeping role for general practitioners has been introduced;

- 1994-1995. A decision to de-concentrate²⁵ healthcare services has been made. Administration from the Ministry of Health was shifted to ten counties. It was also decided to strengthen the general practitioner by reducing physician specialisation (in areas other than general practice);
- 1996-1997. The Obligatory health insurance scheme began to be gradually introduced. Responsibility for the running costs of healthcare institutions, which then lay with the Ministry of Health and self governments, passed to newly established institutions – the State Patients' Fund. The institution became a national health insurance agency, and its budget was separated from the national budget. Public healthcare institutions were reorganised into non-profit public institutions;
- 1998-2000. Discussions on the strengthening of primary healthcare and on hospitals restructurisation started;
- 2001-2002. The Lithuanian National Drug Policy was approved by the Parliament. The system for compensation of pharmaceuticals was implemented;
- 2003-2005. The Healthcare Institutions' Restructuring Strategy was approved by the Government (resolution No.335). The first stage of restructurisation was implemented in the period of 2003-2005. The second stage is foreseen for the period of 2006-2008. Restructuring is implemented in various ways: by merging, re-profiling, splitting, etc. of healthcare institutions. It is projected that the implementation of the Strategy by the year 2008 will lead to a reduction of the number of beds in inpatient healthcare institutions by 20%, from 30.555 in 2002. The average length of stay in hospitals is going to be reduced from 10.8 (in 2002) to 8 days.

During the last few years a large emphasis was placed on reducing spending on healthcare. Under the Healthcare Institutions' Restructuring Program, a number of obstetric departments have been closed mainly in rural hospitals, few hospitals were merged and few of them were changed into nursing long term hospitals. None of the hospitals was closed. In order to speed up the process of restructurisation, to reduce the length of stay in hospitals, the number of beds, etc., a new method of payment for healthcare providers was introduced by an order of the Minister.

The document has introduced financial incentives for the healthcare institutions which do not exceed the limit of the services volume agreed with the Territorial Patient Fund. This was done while not taking into considerations that primary healthcare and emergency care development was insufficient. All these changes have raised considerable concerns among the population due to the decreased accessibility to healthcare services.

Seeking to improve the quality of healthcare services, the Government is considering a possibility to apply public-private partnership in the healthcare sector. A pilot project on private-public partnership initiated by Vilnius municipality is currently under implementation. The main goal of the project is to enhance the quality of healthcare services rendered to the population. According to the project, the management of two polyclinics and the provision of healthcare services will be transferred to private entities while the ownership of the polyclinics will remain under the municipality. If results of the project are satisfactory, this model might be applied to other healthcare institutions as well.

²⁵ There are four commonly identified forms, in which decentralization takes place. They are 1. Deconcentration; 2. Devolution; 3. Delegation; and 4. Privatization (Mills, 1994).

II DESCRIPTION OF THE CURRENT STATUS AND DYNAMICS OF EGOVERNMENT AND EHEALTH

II.1 Institutional structures, resources and funding

II.1.1 Financing structure

The eGovernment strategy stipulates that eGovernment projects can be financed from the national budget, EU programmes and EU structural funds, internal institutional resources, and private business investments. Allocations for the implementation of eGovernment projects are based on general principles of budget expenditures. At institutional level, such funding is treated as allocations for any other function performed by a government institution. Funding which is required for the execution of eGovernment projects is included in the strategic plan for the information society development (2001, Government Resolution 984). The Information Society Development Committee under the Government of Lithuania (ISDC) draws up detailed plans for the implementation of the strategy. Funding of eHealth projects of central government is provided in the same way as for eGovernment as eHealth development is a constituent part of the Information Society Development Strategy.

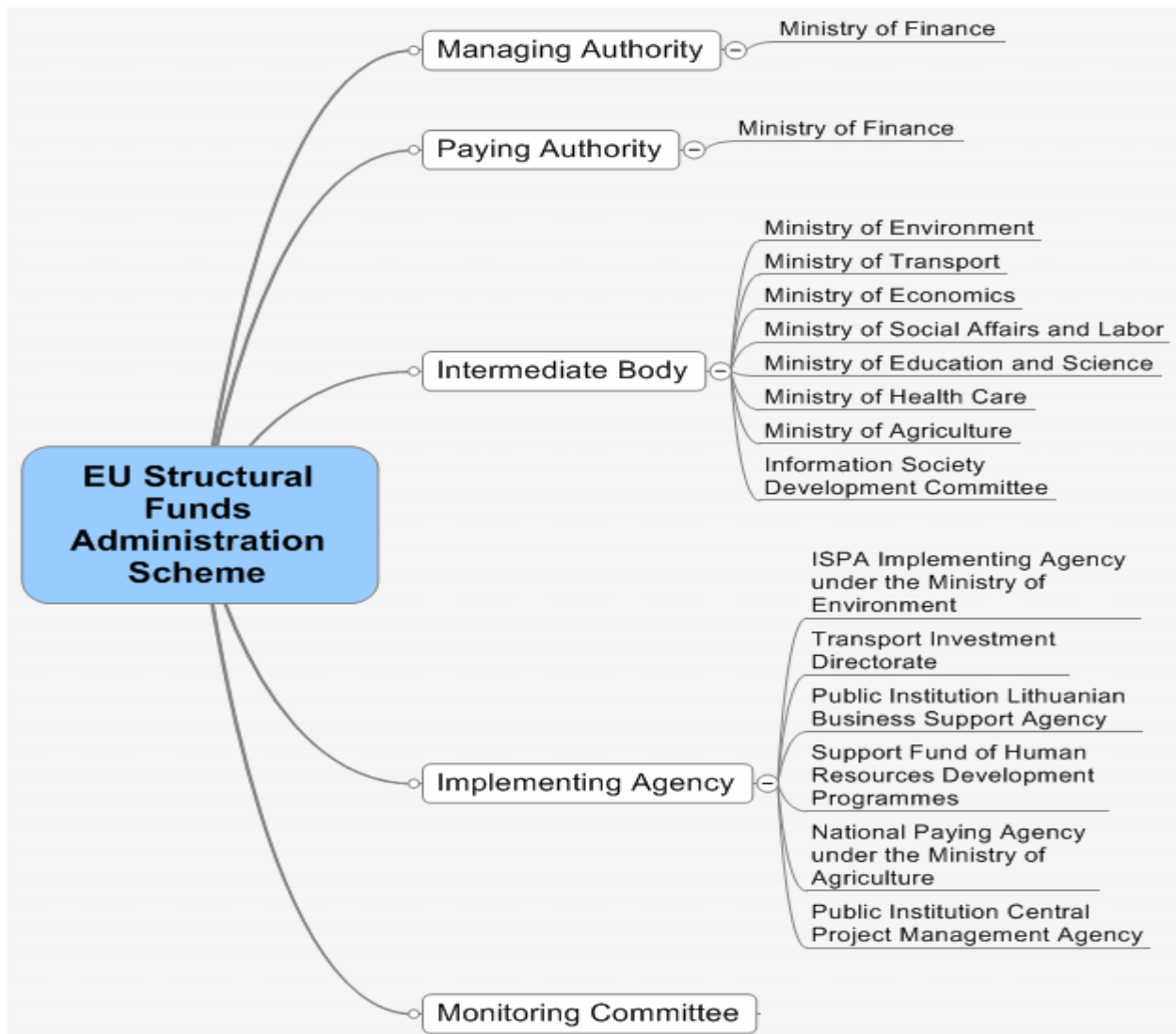
The conceptual framework for eGovernment gives priority to the involvement of private companies in funding IT service provision (Public Private Partnership (PPP), outsourcing, hosting, etc.), but there is little evidence that this is the preference today. The projects are financed mainly from the state budget or EU funds. Some funding was provided from a World Bank loan (2005, Health project) (World Bank, 2005).

The largest share of the investment funds for IS were allocated to the following institutions/projects in 2004–2005: Customs office (information system); Tax Inspectorate (tax declaration system); Ministry of the Interior (State border security system); Ministry of Education and Science (computerisation of schools); ISDC (various projects); Ministry of Finance (various information systems).

Municipalities usually do not have budgets assigned for eGovernment projects and take their own initiatives in this regard. It usually means the projects of small budgets and scope in order to show at least some signs of modernisation (this sign is usually a low quality webpage). Some larger municipalities try to prepare ambitious eCity programmes, aimed at turning respective cities into places that are good to live and do business in (in spring 2006 Kaunas announced that such papers are prepared, and Vilnius has them under preparation). As a positive exception where a municipality places a strategic role to the information society technologies and eServices development is Vilnius municipality (Vilnius City Municipality). Vilnius municipality has a strategic plan, in which a substantial part is dedicated to the information society development, and this plan is being implemented. Furthermore, Vilnius is spending substantial finances on IT infrastructure for municipality and supervised institutions, as well as deploying eServices.

An overall scheme of EU structural funds management is presented below.

Figure 9. Structural Funds Administration Scheme



Source: Government of the Republic of Lithuania

ISDC plays a very important role in distribution of EU structural funds for the information society. According to the programming document, ISDC is approving all decisions to finance projects in 3.3 measure – “Information technology services and infrastructure development”.

eHealth

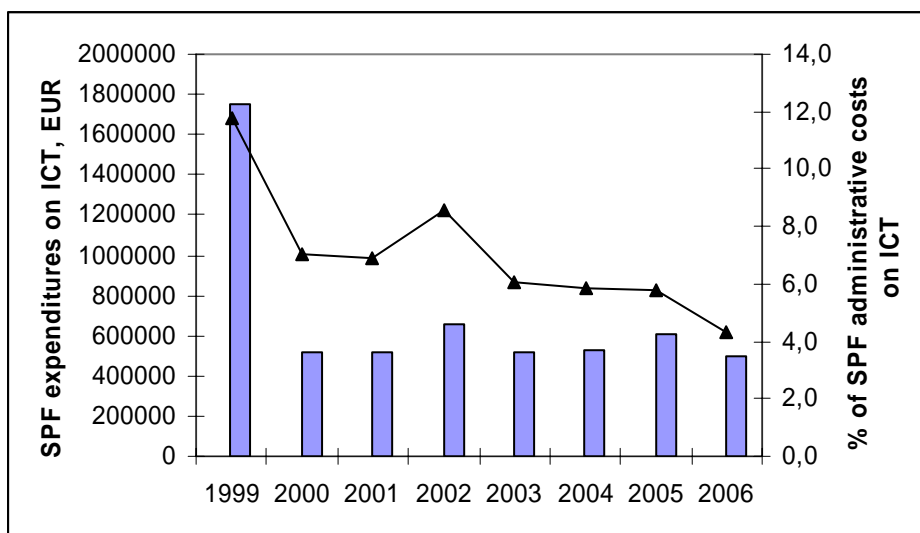
Until the possibility appeared to finance eHealth developments from EU funds, various eHealth initiatives have been funded mostly from budgets of healthcare institutions. Health service providers fund eHealth from general revenue from service provision. However, the prices of healthcare services defined by the State Patient Fund do not cover the costs of capital and depreciation. Funding of investments is available from the government. However, the priority is given to the acquisition of modern medical equipment rather than to the development of ICT. In theory, municipalities as owners can also contribute to investments in healthcare providers, but in practice only rich municipalities allocate some funds and, again, more funds for acquisition of medical equipment or for refurbishment of healthcare facilities. The recent example of Vilnius municipality which allocated about EUR 1m for creating a model for an eHealth system connecting city clinics to one network is an exception, not the rule. Information on how much healthcare providers spend on ICT is not available. In any case it

should not be a big amount as there are only few healthcare providers which have IT solutions for certain activities implemented.

The major driver for eHealth services development within healthcare system has been the State Patient Fund. In 1998, the SPF initiated a project to design an IS for management of Obligatory Health Insurance Fund (OHIF) and for the settlement of payments for healthcare services provided. Before starting the implementation of the system, the SPF has provided healthcare institutions with 600 computers, as a result, computer literacy among healthcare specialists has improved significantly and the benefit of ICT advantages and information transmissions became more obvious. At present, there are over 2000 SVEIDRA working stations in Lithuania which are maintained by 700 servers situated in regional healthcare institutions. Such infrastructure allows the implementation of various parts of eHealth without substantial additional investments.

The development of IS and the supply of PCs to healthcare providers have been funded by the SPF. The Health Insurance Law lays down that up to 2% of OHIF may be allocated for administrative costs of the SPF and 5 Territorial Patient Funds. However, in practice up to 1.4% of OHIF is allocated for administrative purposes. On average, 7.3% of these costs is spent on ICT development – mostly for maintenance and improvements of IS SVEIDRA. Costs for IT personnel of SPF are not included.

Figure 10. State Patient Fund spending on ICT, EUR (1999-2006)



Source: State Patient Fund, 2006;

*Accumulated data for the period of 1998-1999; **SPF estimates for 2006; authors' calculations

During the pre-accession period, one national project related with ICT development in the health sector was implemented. The project LT 9704.02.01 was designed to support the continued health reform process and the development of primary eHealth centres (PHC) in Lithuania. The project was funded by the EU/Phare. One of the project components was to support the Ministry of Health in the development of the health information management system. Under this component, the overall assessment of ICT infrastructure and applications in the healthcare field has been performed. The total budget of the project was EUR 2.5m. Information on how much was allocated for a particular component is not available.

Table 5. Sources and expenditures for eHealth development, (thousands EUR)

Source	2003	2004	2005	2006*
Investment funds from the State budget ²⁶		87	261	87
World Bank loan	302		1 351	2 607
Swedish International Development Agency (SIDA) grant ²⁷	88	608		
Phare		100		
Total	390	795	1 612	2 684

Source: Ministry of Health data; Ministry of Finance data; * estimates for 2006. Authors' calculations

The planned contribution of EU funds for the information society development in the period 2004-2006 was EUR 60.0m, of which 27% will be provided by the state. For ICT development in the healthcare sector an amount of EUR 7.7m (12.8% of the total funds) has been allocated, of which 38.8% will be provided by the state (Information Society Development Committee). 98.9% of EU funds allocated for eHealth has been designed for the development of IS (two projects) and 1.1% of funds for the preparation of feasibility studies and investment projects for healthcare providers (three projects).

Over the period of 2003-2006, the biggest share of funds was allocated for the Ministry of Health (projects for technical assistance, computerization of healthcare institutions, projects on development of national eHealth system), University Hospital Santariskiu Clinics (project on patients' booking network in several healthcare providers).

II.2 Current strategies, policies, action plans and projects

II.2.1 Major policies

eGovernment, as a crucial component of the knowledge society, is one of Lithuania's declared policy priorities as provided by resolution of the Parliament of 24 May 2001, Long-Term Development Strategy of the State (resolution No IX-1187 by Parliament, 2002), and other strategic documents. Summary of relevant policy documents is provided in the table below.

Table 6. Relevant policy documents on e-Government and e-Health

No	Date	Title	Content
Government resolution No 229	28 February 2001	On the approval of a National Conceptual Framework for the Development of Information Society in Lithuania	It lays down the main tasks for the government in developing the information society and defines the employment of computer technologies in public administration as one of the primary objectives. It is the first strategic document in the field of IS, initiated following EU policy trends.

²⁶ State Programme for Capital Investments. The amount does not include the funds the State allocates for co-financing of EU funded projects

²⁷ The grant for technical Assistance allocated to Lithuania Health Project, which implementation is financed by the World Bank Loan

Government resolution No 984	10 August 2001	On the approval of a Strategic Plan for Information Society Development	It stipulates that modernization of state governance is based on the application of information technologies. The ISDC is authorised to execute the aforesaid strategic plan.
Government resolution No 600	30 April 2002	On the approval of a 2002 Detailed Plan for Information Society Development	It defines modernization of state governance as one of the four principal objectives of the plan. An allocation of LTL 4.190.000 is envisaged for this purpose.
Government resolution No 853	12 June 2002	On the approval of Strategic Guidelines for Long-term Lithuanian Economy Development by 2015.	
Decision No. 387 of the Minister of the Health Care	30 June 2002	On the approval of Health Information System Development Program.	According to the decision, a detailed implementation plan for eHealth strategy had to be prepared and launched in 2003. The strategic guidelines had to be approved in 2002. The latter are have not been approved yet (in 2006).
Parliament resolution No IX-1187	12 November 2002	On Long-Term Development Strategy of the State	It presents evaluation of the present state and draws a vision of future Lithuania. Three priorities are indicated: (1) knowledge society, (2) safe society, (3) competitive economy. eGovernment is emphasized as a way to provide efficient and transparent public services, to increase country's competitiveness and to bring people closer to the decision making process.
Government resolution No 2115	31 December 2002	On the approval of a Conceptual Framework for eGovernment	It describes the benefits of eGovernment and specifies measures for the implementation thereof. It defines the way of management and financing of eGovernment projects as well as institutions involved. It indicates the requirements for safety and interoperability and accessibility. It provides the scope and priorities. The target is to have major eGovernment services operating starting from 2005.
Government resolution No 182	3 February 2003	On the approval of a Methodology for the Co-ordination of Information Society Development	It defines the rules which ministries, government institutions, ministerial institutions and regional territorial administrations have to follow in drawing up strategic plans for information society development in Lithuania

Government resolution No 330	18 March 2003	On Strategic Goals (priorities) of the Government of Lithuania	One of strategic goals (1.6) is to develop the information society and the knowledge economy.
Government resolution No 852	30 June 2003	On the approval of the Action Plan for the Implementation of the Strategic Guidelines on the development of an integral system for the state registers	It indicates the need and means for integration of the state registers.
Government resolution No 1468	25 November 2003	On the approval of an Action Plan for the Conceptual Framework of eGovernment	It stipulates policy measures, competent institutions, deadlines, expenditure needs and expected results of the implementation of the conceptual framework for eGovernment.
Government resolution No 488	28 April 2004	On the approval of a Strategy for Public Administration Development until 2010	It analyses the present state of the public administration, draws the vision, goals and targets for public administration, lists the benefits of eGovernment in enhancing transparency and effective service provision.
Government resolution No 1042	23 August 2005	On the approval of a 2004 Detailed Plan for Lithuania's Information Society Development	It defines measures for increasing the level of computer literacy in the society, modernizing state governance based on the application of IT, developing eBusiness and fostering Lithuanian culture.
Government resolution No 197	21 February 2005	On the approval of a 2005-2006 Action Plan for the Implementation of the Strategy for Public Administration Development until 2010	It defines the application of information technologies in public administration as one of the goals for 2005 and 2006. It formulates an objective to go online for all public services rendered by state and municipal institutions and agencies or to render public services through other distant methods by the year 2006.
Government resolution No 625	8 June 2005	On the Approval of Strategic Guidelines for Information Society Development	It updates and specifies the goals and means for IS development in changed circumstances after Lithuania joined the EU. It provides a SWOT analysis for major indicators of IS in Lithuania. It indicates the priorities of further development: modernisation of public administration by implementing ITC is one of them. The target for 2010 is to achieve 40% of population using public eServices, and 70% of public eServices provided on one-stop-shop principle. It lists ten indicators for measuring IS progress.

Government resolution No.1270	22 November 2005	On the approval of National Lisbon Strategy Implementation program	It evaluates availability and use of eG services and lays down the goals for modernising public administration by using ICT.
Government resolution No. 307	29 March 2006	On the approval of an Action Plan for the Conceptual Framework of eGovernment	It updates the plan of 2003. The plan consists of EU-defined services for citizens and business and 16 other services that are selected according to IDABC. No action on local or municipal level is included.
Government resolution No. 601	19 June 2006	On the approval of the Strategic Guidelines and its Implementation Plan until 2008 for Electronic Information Safety in the Information Systems of Public Institutions	
Government resolution No. 615	21 June 2006	On the approval of the Programme for Information Society Development in Lithuania for 2006-2008	It evaluates the present state of IS and provides the list of the planned eG, eL, eH projects to be carried out in 3 coming years together with their estimated financing and time frame.
Minister of Health Decree No.V-718	15 October 2004	Implementation Strategy of Health Care Reform's Aims and Objectives for 2005-2011	Here the development of the ICT in the health sector is presented as one of the domains of healthcare reform management.
Draft only		On the eHealth Strategy for 2005-2010 by the Ministry of Health	It directly deals with eHealth services, aiming to restructure the entire system of healthcare, to modernize it, to make it function more efficiently with the help of ICTs. One of the aims is to provide means for people, patients, medics and administration to ensure better treatment and care of patients and to improve accessibility of healthcare services. This strategy should help to encourage patients to take an active part in their healthcare process, and to allow patients to register for visits to healthcare providers by telephone or the Internet. In order to implement these goals, it is planned to create an eHealth Information System.

In 2001, a National Conceptual Framework for the Development of Information Society in Lithuania as well as a Strategic Plan for Information Society Development was approved and the Information Society Development Committee was set up. The Conceptual Framework for eGovernment was approved one year later and the Action plan for its implementation in 2003. The conceptual framework describes the benefits of eGovernment and specifies measures for the implementation thereof the action plan stipulates policy measures, competent institutions, deadlines, expenditure needs and expected results.

Most of the present strategic IS documents were adopted in 2001 and 2002, although a broad information society development project “National communication and informatics programme” (unofficially called “Lithuania 2000”) was initiated back in 1992. The major goals of the programme were to facilitate integration into the EU, to increase efficiency of public administration, to increase the quality of public services, to create favourable conditions for a market economy, and to create a national system of information services. The Ministry of Communications and Informatics, which was later liquidated, headed the programme. For numerous reasons, including an overly high level of centralization and poor financing and managerial skills of public administration, only fragmented results were achieved and the programme was terminated together with the closure of the ministry. The Ministry of Communications and Informatics was founded in 1992 and closed in 1998. Its functions were distributed among other ministries in several steps of reorganisation. Since then proposals to establish a separate ministry for the information society issues are being raised periodically (the last time they were put forth in spring 2006), but the Government restrains from performing this action.

In 2005, Strategic *guidelines for information society development* were approved which updated and specified the goals and means for IS development in changed the circumstances after Lithuania has joined the EU. The indicated target for 2010 is to achieve 40% of the population using public eServices, and 70% of public eServices provided on one-stop shop principle.

Program for Information Society Development in Lithuania for 2006-2008 was approved in June 2006. It evaluates the present state of the information society in Lithuania and sets goals for the coming three years. The document sets as priorities the accessibility of services, as well as development of the broad spectrum of eServices. The document has been prepared according to the Commission’s Communication i2010.

In 2005, a *2005-2006 action plan for the implementation of the strategy for public administration development until 2010* was approved. It defines the application of information technologies in public administration as one of the goals for 2005 and 2006. This resolution formulates an objective to go online for all public services rendered by state and municipal institutions and agencies (except for services which cannot be provided in a distant manner) or to render public services through other distant methods by the year 2006.

According to *Long-Term Development Strategy of the State*, (2002) Lithuania has three priority goals: knowledge society, safe society and competitive economy. The goal of the knowledge economy comprises: education and research, competence of the population, state and municipal administration, and culture. eGovernment is named as one of the major tools to improve public administration. According to the Strategy, information system development is viewed as one of the crucial priorities of the strategic directions of the healthcare system’s long-term development.

Development of information services, as a special measure (3rd measure of the 3rd priority) is also projected in the *Single Programming Document (SPD) for 2004-2006 EU funds*. Activities related to the introduction and development of IT technologies and networks aiming to strengthen specific cardio healthcare services were supported under the priority 1 *Development of the Social and economic infrastructure* measure 1.4 *Restructuring and upgrading of Healthcare Institutions* of the SPD.

National Lisbon Strategy Implementation programme (2005) foresees the following measures while modernising public administration by using ICT.

Table 7. Measures in National Lisbon Strategy Implementation programme (2005)

Measure	Institution responsible	Year	Funding
One-stop-shop eGovernment portal	ISDC	2005-2008	EUR 1.9m (EUR 1.4m among it EU funds)
Integration and security of state registers and information systems	Ministry of the Interior, Ministry of Agriculture, Ministry of Communication, ISDC, Chiefs of the districts	End of 2008	
85% of major public services online	Ministry of the Interior, ISDC	2005-2008	
To prepare methodological guidelines for monitoring of public service provision by ICT and to carry out this monitoring	Ministry of the Interior	2008	
To prepare draft legislation on Government gateway functioning providing public services	Ministry of the Interior, ISDC	The end of 2005*	
To prepare draft legislation on public information system management	ISDC	2007, IIIq	

Source: National Lisbon Strategy Implementation programme, 2005 (Government resolution No. 1270)

*The rules of Government gateway functioning providing public services were approved by the Director of ISDC in December, 2005. (See chapter 4)

In the *Lithuanian National Reform Program*, prepared for the European Commission, eGovernment is presented as a means to reduce bureaucracy, to reform public management and to increase its effectiveness (European Commission, 2005). However, Lithuania hasn't presented any plans for a business regulation reform in order to make business condition more favourable. As indicated in the Commission Communication, Lithuania has established an institutional structure, responsible for monitoring and analysis of public administration spending, however, only intentions to do it could be found in mid-2006.

A legal basis and a responsible public administration institution for eGovernment were established in Lithuania about five years ago. Projects on eGovernment and online services are enlisted in the programmes of major political parties and government's action plans. The number of eGovernment services is expanding, and new eGovernment projects are being launched. The premise that eGovernment can increase the effectiveness of the public sector is not questioned in the public discourse, however, there are still many unsolved issues and obstacles to easy-to-use and good quality eGovernment services.

There are several national legal documents which deal with the overall development of the information society in Lithuania, implicitly or explicitly related to eHealth. *Long-Term Development Strategy of the State* and *Long-Term Economic Development Strategy of Lithuania until 2015* (both from 2002) provide for the reform of the healthcare system which is to be based on the development of ICT systems. *National Development Plan* states that the development of better informational services should be one of the main priorities of the state in the coming years. *Action Plan for the Implementation of the Programme of the Government of the Republic of Lithuania for 2001 – 2004* addresses the healthcare issue as well. Objectives are to prepare the Programme for Development of Information Health System, in order to improve accessibility to healthcare services and develop the

awareness about healthcare. Similar notions can be found in the *Strategic Activity Plan* of the Ministry of Health for 2003. *National Conceptual Framework for the Development of Information Society* and *National Strategy for the Development of Information Society* project the aim of improving the quality of healthcare provision by using ICT, which is expected to facilitate accessibility to healthcare information. There are also notions about provision of information via the Internet, preparation of a legal basis for provision of information for patients via the Internet, and the introduction of an electronic patient's card.

The *eHealth Strategy for 2005 - 2010* by the Ministry of Health directly deals with eHealth services. The strategy aims to restructure the entire system of healthcare, to modernise it, to make it function more effectively with the help of contemporary information and communication technologies. One of the aims of eHealth strategy is to provide the means for people, patients, medics and administration to ensure a better treatment and care of patients and to improve accessibility to healthcare services. This strategy should help to encourage patients to take an active part in their healthcare process, to provide patients with a possibility to register for visits by telephone or the Internet at a convenient time. It is also mentioned that it is important to realize the interests of the main groups concerned: patients, medics and administrators of the healthcare system. The requirements of these groups form the background of the eHealth Strategy.

The Feasibility study on eHealth development in the healthcare sector of the Republic of Lithuania by the Ministry of Health (2005) describes the project for the eHealth System Preparation and Implementation in the Healthcare Sector. Currently, it is the most important document in the eHealthcare area, which covers major eHealth policy provisions of the strategic documents and provides a rather detailed action plan for the national eHealth system implementation.

Formally, eGovernment and eHealth policies exist; they are referred to in programs of major political parties, in governmental programmes, in EU related documents (Lisbon agenda implementation, Single programming document, etc.); certain measures are included in action plans and even implemented, however, they are still not an integral part of the policy framework. eGovernment and eHealth are treated as a supplementary tool to improve the respective systems, but not as a new paradigm of governing and healthcare itself. Historically, this approach hasn't changed significantly. Earlier (in 1992-1995) it was driven mainly by the belief in the power of technological progress, later – by the example of EU countries and international benchmarking. The priority is clearly for quantity – the supply and usage figures, but not for changes in the processes and quality (cost-efficiency, transparency, user-friendliness) factors.

II.2.2 Projects in the domain of eGovernment

The Government portal (www.govonline.lt) project was launched in 2003 with the aim to join all Lithuanian public institutions into one system for administration of official information and so to provide an easier and faster access to information of public institutions as well as to render public services via the Internet. It serves both individual and business users. The project is managed by the ISDC. In order to implement EU requirements, the English version of the portal is harmonized with the EU portal of public services.

The creation of Government portal was one of the first steps towards transferring public services into electronic media, though separate eServices were already functioning before (as one of the first and well functioning system worth to be mentioned is the online database of legal acts of the Parliament).

At the beginning of 2006, there were around 700 eServices formally accounted at the eGovernment portal. According to the ISDC, most of them can hardly be considered as eServices due to insufficient quality. They are fragmented and do not release the user from the need to know bureaucratic procedures and to follow them (collecting signatures, submitting applications to various institutions and alike). Therefore, rather radical improvements are being planned by the ISDC. The limitations of the existing portal, according to ISDC, are the following:

- the visitors' identification system is not implemented in the portal,
- the one-stop-shop principle is not realized,

- eDocuments are duplicated with paper documents,
- it is difficult to correct and to amend the existing services,
- the bureaucratic procedures are unclear and/or excessive for the user,
- it is complicated to maintain the portal.

In 2004, seeking to improve the portal, the ISDC selected 49 eServices and made their in-depth analysis, finding out what institutions participated in providing these services, what documents were required, what was the legal background for these procedures, what signatures were needed and what were the user flows (the number of requests). On the basis of the study, a pilot project on the declaration of the living place was carried out. The project involved four public administration institutions; identification was made using eBanking identification systems.

In 2005, the ISDC prepared a project for **creating a platform for eServices which would allow a one-stop shop implementation** that would free consumers from the necessity to know the internal administrative procedures of the needed eServices. EUR 1.9m from EU structural funding was assigned. The project is planned for 18 months and shall start from the tax administration eServices. The ISDC envisages the platform to be in operation from 2008.

According to the ISDC and experts polled, the major risk for implementation of this project is its interconnection with a foreseen change of public administration procedures itself, because if the project is implemented, it will be possible to monitor and evaluate the meaningfulness and the costs of all bureaucratic actions.

The users shall be identified at the portal and then the procedures shall be directed to the respective public administration institutions. This platform would also provide a monitoring of the processing of bureaucratic procedures at all institutions involved. The idea was strongly resisted by a number of ministers pointing to the lack of resources.

The creation of the **National Data Management Centre** was initiated by the ISDC in 2005, at the Strategic Committee of the Government. The idea behind this project is to remove the inefficiency and the lack of interoperability of the information systems of state institutions. This inefficiency is mainly caused by unreasonable financing mechanisms for information system creation (annual budget allowances) that prevents public institutions from designing and implementing high quality information systems. This problem is also addressed in new draft legislation on National information resources, whereby long-term investment possibilities (including outsourcing and PPP) for public institutions are being envisaged.

The idea of the project is to create a data management centre which would not collect its own data but manage the data of big data users - the Tax Inspectorate, the Social Security Fund, the Ministry of the Interior and the Customs department – and record the process itself. The system would also provide a consolidated query to state registers, as the mentioned institutions often use the same data. The ISDC has to prepare all legal acts needed for the establishment of the centre in 2006.

The ISDC carries out a project “**eDocuments exchange in state institutions**”: a pilot stage in 2003-2004, and an implementation stage in 2005-2007. The goal of the project is to shift from paper documents at state institutions to the electronic ones. At the moment, the pilot project is implemented in 20 state institutions.

State institutions can use different document management systems. eDocuments are sent via e-mail to dedicated mailboxes in the institutions. The structure of the data package is defined in the exchange package, the SW is created and installed, eDocuments are created on the user desktop and copied to the institution's database or file system; a responsible person signs the document with eSignature, the software of the sending institution sends it in an appropriate format to the receiving institution which in turn confirms the delivery.

II.2.3 Projects in the domain of eHealthcare

State patient fund IS Sveidra was initiated in 1998. Currently, it is the biggest functional information system in Lithuania, covering the entire territory of the country. The major spheres of application:

- perspective planning of compulsory health insurance fund budget;
- drafting of annual budgets;
- records of execution of the approved budget;
- control and analysis;
- accounting of health insurance services provided to migrant workers;
- settlement of payments.

The Sveidra regularly receives the updated information from the Register of Population on permanent residents in the Republic of Lithuania and individuals on a temporary stay. On the basis of data received from the State Social Insurance Fund Board and the State Tax Inspection, as well as other related governmental institutions, including data provided by the insured individuals themselves, every inhabitant of Lithuania is attributed to a respective group of the insured (employed persons, pensioners, children, students, unemployed and others). All data from the record of the insured at the SPF data base are automatically transferred to all territorial patient fund offices.

If you want to *check whether an individual is insured under the scheme of compulsory health insurance*, the Sveidra is very handy for healthcare institutions. Access to information about this type of insurance is available to more than 1 100 healthcare institutions and their branches. However, the system does not provide an opportunity to check an insurance status for the individuals themselves.

All data about particular citizens and the services provided to them is collected at local healthcare institutions and then transferred to regional state health insurance offices for verification and approval. All the data at national level is stored at the Lithuanian State Patient Fund and is used for analysis and reporting to other governmental institutions.

The Sveidra data base registers and makes accounting of doctors having permits to prescribe reimbursable pharmaceuticals, sick individuals for whom the recoverable medicines are prescribed, forms of prescriptions issued to the patients, data on settlement with pharmacies, etc. 1 653 pharmacies with subsidiaries to deliver recoverable pharmaceuticals under prescriptions are registered in the Sveidra data base, over 20 million of filled in prescription receipts are already in the data base.

In recent years, the patient fund information system has been loaded with new tasks. In 2005, the system to issue and register European health insurance cards was implemented. Data exchange among providers of healthcare services, territorial patient fund offices and the State Patient Fund was implemented through the usage of 100 forms. The installed system allows submitting request to issue the European health insurance card, to check the validity of the card: https://kvp.vlk.lt/esdk_busena. The costs for provided services were covered from the OHIF budget.

In 2006 the data base was created, which allows registering orthopaedic appliances produced for patients under the contracts with manufactures, and automatically controls the terms of usage of the appliances. The system allows the patient to follow the order processing, <https://kvp.vlk.lt/OrtoPacientams>

An important role in processing the flows of information should be played by the data analysis sub-system of the Sveidra, which is currently in the process of development.

SVEIDRA was designed more for satisfying the needs of accounting and distribution of funds, rather than for the needs of health providers. The data about reimbursement of services and statistics are collected and remain in the repository of the SPF and are hardly accessible to healthcare institutions.

Pilot project on the development of the national core of the eHealth system (2005-2006)

The aim of the project is to design the national core of the eHealth system which could ensure the exchange of information within the health system and/or with the related systems interlinked to it and to create a basis for the operation of the functions of the eHealth system at national level and ensure the possibilities of expanding the functionality of the system (principles of granting access to the information contained in the eHealth system, the principles of the identification of patients, medical and administrative personnel, the registers/classifiers of the main entities of the eHealth system). The information system which will be developed under the project shall consist of three subsystems: (i) subsystem for registers; (ii) subsystem for general practitioners (family physicians) and (iii) subsystem containing information about all patients. In addition, a special program to enable subsystems to communicate shall be designed. Currently, the project covers 14 health providers from Vilnius and Kaunas regions.

Under the project, the following functional modules will be created:

- Registration of healthcare events and health disorders, exchange of clinical and administrative data. The system will allow medical personnel to register the reasons of the visit of a certain patient, the diagnosis, proposed treatment, formulate hospital release reports, and will offer a possibility to accumulate the health record of the patient.
- Creation and dispatch of referrals for consultations/treatment, recording and receipt of responses. The medical personnel will be able to create a referral for a consultation by a specialist for relevant treatment for a patient. The system will allow to refer a notification to the specialist and to input the reply of the doctor who consulted the patient.
- Execution of registration for an appointment. The module will allow the medical personnel and the patients to register for a consultation/treatment/test at a time selected by the client in a specific healthcare institution.
- Formulation and dispatch of referrals for diagnostics (laboratory, medical images) and receipt and storage of the results. The system will allow the medical personnel to formulate a referral for a diagnostic test for a patient, to select the provider which will perform the test, to dispatch a notification to the healthcare institution about the referral, and to input the IS test results.

Total project costs are EUR 2 606 thousand. The project is one of the components of the Lithuanian Health Project funded by the World Bank loan. The agency implementing the project is the Ministry of Health.

eHealth project (2006-2009) (Central Project Management Agency, 2006)

The strategic aim of the project is to design a single eHealth system, which will cover all the functions available to the target groups at national level. This project will continue the implementation of functionalities, some of which have been started to be implemented under the above mentioned pilot project on development of the national core of the eHealth system. Under this particular project, the following functional modules (in addition to the four modules created under the previous pilot project) are going to be designed:

- Drafting and sending out of referrals for the establishment of a diagnosis (to the laboratory, for medical images), receiving of the results and their storage.
- Registration and identification of samples.

- Receiving, archiving and exchanging medical images (radiology and roentgen).
- Assistance in writing out of prescriptions, drafting and sending of ePrescriptions.
- Using of templates when preparing medical documents.
- Methodological assistance in the treatment process.
- Drafting and submitting of statistical, public health monitoring reports and reports required by the SPF.
- Automatic transfer of the information on compensatory services to SVEIDRA IS.
- Analysis of the collected information.
- Emergency medical treatment.
- Telemedicine (provision of remote medical services).

The project, apart from the development of the main functions of eHealth system, is going to cover the organization of internal processes of healthcare institutions. The following processes and functionalities will be covered in the pilot institutions:

- Patient care functions: management of patient clinical information, care management, in-patient health record of the patient.
- Functions of order stocktaking and planning of service orders. Management of exchange of order information, work analysis, planning of the general occupation of the organisation.
- Clinical information functions. Laboratory information management, radiological information management, operational information management, blood bank information management.
- Supporting functions. Exchange of data with medicines warehouse, management of medicinal goods and inventory, management of catering diets and kitchens, laundry replacement and washing and property management.
- Integration functions. Data exchange with the national eHealth system, data exchange with other internal systems (e.g. procurement management system, business management system, etc.).

The project is going to cover 28 healthcare institutions of Vilnius, Kaunas and Klaipeda regions. The total budget of the project is EUR 5.481m, about 56.5% of the total costs will be covered by the European Union structural funds according to the measure 3.3 “Development of information technologies and service infrastructure” of the SPD.

Although the project is recognised as high priority, its implementation is in big delay. The project has been also criticised by experts as the planned deliverables are too ambitious for the time period and within the provided budget.

The project on reducing morbidity and mortality from cardiovascular diseases (2005-2008)
(Central Project Management Agency, 2004)

The project will supply the necessary equipment for early diagnostic of cardiovascular diseases to 40 healthcare institutions, providing ambulatory and inpatient care services. One of the project components is dedicated for development of new information technologies and systems to ensure timely exchange of data on patient status and the treatment appointed among healthcare institutions. The agency responsible for the implementation of this project is Vilnius University Hospital Santariskiu Clinics. The total budget of the project is EUR 19 405 thousand. A major share of funds will be provided by the European Union structural funds according to the measure 1.4 “Restructurisation and modernisation of healthcare institutions” of the SPD.

eHealth development programme in Vilnius city (2005-2007)

The aim of the eHealth project is the consolidation of the local computer networks of the city's healthcare institutions and polyclinics into a single system. Later, they will be integrated into the data centre of Vilnius City Municipality. Under the project, healthcare institutions of Vilnius city will be provided with new ICT equipment. This constitutes only one step towards the development of the eHealth project infrastructure. The essence of the eHealth project is the improved availability and accessibility to medical services, which will be ensured both by the automated system of healthcare institution functions in the municipal community and by the latest technologies. The implementation of this project will provide municipal healthcare institutions with a broader data channel, fast Internet access, secured document safety, their coupling and centralized supervision. The municipality of Vilnius city plans to invest up to EUR 1m into the implementation of the eHealth project. The project is due to be completed in mid-2007.

Pilot project "Patient Visit Reservation System" development (2005-2007)

The goal of the project is to take advantage of possibilities provided by modern information and telecommunication technologies in order to reduce administration costs, to provide to the public easily accessible and high-quality healthcare services, and to more efficiently use human and material resources of healthcare institutions.

Currently, a reservation system of patients in healthcare institutions is carried out using paper journals or is not carried out at all, and the arrival of patients to healthcare institutions without the reservation system results in live queues at consulting rooms. When the reservation system is made in paper form, it is not possible to combine information flows from different healthcare institutions: in practice, patients are not able to choose the most suitable physician and the most suitable visit time in different institutions. A paper registration journal allows the work for one operator only and at a single workplace. This restricts the efficiency of work and results in queues at reception desks and blockages of telephone lines.

The project will be implemented by creating an electronic patient visit reservation system which will link separate reservation systems of different healthcare institutions. The project will be carried out by the applicant – public enterprise Vilnius University Hospital Santariskiu Clinics – and 19 partners. Principal flows of patients in institutions participating in the project comprise residents of 51 municipalities, both municipal and regional, in Lithuania. The project is 100% supported by the European Union structural funds according to Measure 3.3 "Development of Information Technology Services and Infrastructure" of Lithuania's SPD of 2004-2006. The total budget of the project amounts to EUR 2.14m (LTL 7.4m). These funds will allow not only the creation and installation of the electronic system but also the equipment of 580 new computerised workplaces in healthcare institutions, modernisation of computer communication networks, and the installation of the Internet assistance centre – for those patients preferring to register by telephone. The entire project should be completed before September 2007.

ICT implementation and development in Vilnius University Emergency care hospital (2005-2006)

The project was initiated to perform a feasibility study on IS development in Vilnius Emergency Care Hospital using the Internet infrastructure of the hospital. The following goals are identified for the adoption of health information technology in the hospital: to improve the quality of healthcare services; to reduce the costs of treatment and administration; to help the patients' transition between healthcare settings; to increase healthcare information sharing between healthcare providers and laboratories; to reduce duplicative and unnecessary testing. After implementation of the project, the following eServices are going to be provided: electronic patient registration for consultations and operations; provision of information to patients and general practitioners on preparation for operations (treatment), after-operation treatment; provision of information to patients and physicians on tests and interventions performed; transmission of data about laboratory test results, radiology reports, and

pathology reports to other healthcare providers. 75% of the feasibility study costs will be funded by the European Union structural funds according to measure 3.3 “Development of Information Technology Services and Infrastructure” of Lithuania’s SPD of 2004-2006. The total budget of the project amounts to EUR 30 thousand.

The project on eAmbulatory healthcare system development and implementation in primary healthcare institutions of Vilnius city (2005-2006)

The aim of the project is to perform a feasibility study to assess the possibility to reduce treatment and administration costs and to improve the quality of healthcare services through IT tools. The project will help to build an integrated communication system with outpatient healthcare institutions of Vilnius city. At the beginning, 8 primary healthcare institutions and Vilnius municipality will be connected to one network. It is expected that the system will allow improving the management and organization of healthcare services in Vilnius city, rationalising utilisation of resources, improving the quality of diagnostic services and rationalising prescription of medicines. The project will be carried out by the applicant – public enterprise Vilnius Seskines polyclinic. The total budget of the project amounts to EUR 20.8 thousand. 80% of the costs will be covered by EU funds.

The project on the development of IS for the State Medicine control Agency (2005-2006)

The aim of the project is to prepare a feasibility study on the implementation of a new information system in the State Medicine Control Agency. The system should allow modernising the administration of the pharmaceutical sector and ensuring easy access to comprehensive information on medicines for citizens, healthcare providers and business entities. The total budget of the project is EUR 13.8 thousand. The project will be funded from Structural Funds of the European Union according to measure 3.3 “Development of Information Technology Services and Infrastructure” of Lithuania’s SPD of 2004-2006.

International projects

The Baltic eHealth Project (2004-2007)²⁸

The aim of the Baltic eHealth Project is to encourage the use of eHealth and thereby counteract rural migration by creating a large transactional IT-infrastructure for eHealth. During the project, electronic communication over the Baltic Health Network will be tested in pilot projects in two different medical specialties: eRadiology and eUltrasound. The project consolidates 17 partners from Denmark; Poland; Norway, Finland; Sweden, Germany and Lithuania. The total budget of the project is EUR 3.5m. An amount of EUR 359 thousand from EU funds will be allocated for Lithuania’s partners. In addition, the Norwegian government will cover about 25% of the total project costs.

Litmed 1²⁹ (2000-2002). Baltic Information Technology (BIT Sweden) funded project for pilot telemedicine network connecting Swedish and Lithuanian physicians. The Biomedical Engineering Institute (BEI) at Kaunas University of Technology has been involved in the project’s implementation. As a result of the project, Telemedicine Support Centre was established at the Institute. Currently, the Centre actively participates in the following international projects on telemedicine development:

TelemediCare (1999-2002). Telematic Support for Patient Focused Distant Care IST-1999-10754. European Union FP5 supported project for telemonitoring and home care using wireless technologies and new telemedicine software and hardware. Eight partners from Norway, Sweden, Greece and Lithuania have been working together to introduce a new concept for tele-supported home care patient monitoring, utilising open platform telemedicine solutions.

Baltic Medweb 1 (2001-2002) and Medweb II³⁰ (2002-2003). Sweden funded projects for image acquisition and management in ophthalmology and otorhynolaringology.

²⁸ http://www.baltic-ehealth.org/Baltic_Health_Network.htm

²⁹ <http://www.bmii.ktu.lt/~litmed/litmed/index.html>

³⁰ <http://www.balticmedweb.nu/>

Litmed 2³¹ (2003-2004) Sweden supported project for pathological image registration, processing, web services for clinical decision support.

NetLit (2000) Corporative project with partners from Kaunas medical University, Swedish companies TietoEnator and Euromed. The eHealth project includes research, education and clinical practice. This project was presented in the exhibition and a ministerial level eHealth conference on eHealth in Brussels in May 2003 and was awarded by a finalist diploma (only one diploma from the Baltic States).

Pro-Access³² (2002-2004). IST-2001-38626. European Union FP5 supported project on eHealth developments in European pre-accession countries.

Interreg IIIc³³ (2004-2006). No.2N0038N. European Union supported project for cross-boarder collaboration, optimisation of process management in hospitals and eHealth.

EMIT³⁴ EU supported Leonardo project “European Medical Imaging Training”, coordinated by UK London Kings College, intended for MRI, CT, X ray and Ultrasound imaging technologies. The Biomedical Engineering Institute is an associate member.

EVICAB³⁵ (2006-2007). Ongoing EU project with the goal to create a European virtual environment of Biomedical Engineering education using distance learning technologies.

WOUNDMONITOR³⁶ ongoing EU project (European Commission, 2006). The project aims at producing a non-invasive system device which can monitor the state of the patient’s wounds. The project intends to solve well-identified scientific/technical problems related to acquisition of accurate data for healthcare and to explore new concepts for the integrated systems for health. The research project involves teams from 4 European countries, namely the UK, Germany, Italy and Lithuania. Two partners from Lithuania participate in the project: Pustlaidininkiu Fizikos Institutas and Kaunas Medical University Hospital.

Unfortunately, it should be noted that there is not much information available on the results of the international projects.

II.2.4 Other policies

The Strategy for **Public Administration Development** until 2010 (2004) has defined computerization and automatization of services as key tasks of the public administration reform. The goals of the Strategy are formed according to cooperation in the field of public administration mid-term program for 2004-2005, approved by European ministers in Rome in 2003. They are as follows: better regulation, human resource management, innovative public services and eGovernment. The action plan for implementation of this Strategy was approved in February 2005. With regard to eGovernment, it envisages measures that are mainly related to the development of public eInfrastructure (joint project with the Alliance “Window to the future”), security of state information systems, eTraining of public officials and legislation amendments, enabling wider eCommunication possibilities in public administration.³⁷

Though the bulk of measures of the action plan are committed to better regulation, the implementation hasn’t brought any significant results in curbing the bureaucracy so far, and eGovernment projects are being implemented without respect to the presumable public administration reform.

³¹ <http://www.bmii.ktu.lt/~litmed/>

³² <http://www.pro-access.org/infopages/project.php>

³³ <http://www.interreg3c.net/sixcms/detail.php?id=310>

³⁴ <http://emerald2.eu/emit/index.htm>

³⁵ <http://www.evicab.eu/>

³⁶ <http://www.woundmonitor.manchester.ac.uk/>

³⁷ In 2005 the amendments to the law on public administration providing the right to the citizens to apply to public administration institutions by e-mail and to receive the answer the same way were adopted.

The short term goals (up to the year 2005) of the **Lithuanian Health Program** for the period 1997 to 2010 obligate the development of the primary healthcare services, the establishment of GP offices and their partitioning into groups, while paying special attention to primary healthcare in rural areas (Strategy of Development and Modernisation of Network of General Practitioners, by order of the Minister of Health, No V-805, 31 December 2003). This strategy was prepared on the basis of a Long-term State Development Strategy (2002), priorities of healthcare, and a Strategy of Restructuring of Healthcare Institutions (Government Resolution Nr.335, 18 March 2003).

The Measure of the **Single Programming Document** of Lithuania 2004-2006 “Restructuring and Upgrading of Healthcare Institutions” also envisages activities of the development and modernisation of GP offices. Apart from supporting the healthcare reform and the development of a high-quality healthcare system, this strategy determines directions for further development of healthcare system in order to improve accessibility of healthcare services in rural areas. GP institutions in rural and remote areas are not sufficiently developed, so it is difficult to assure equal accessibility of healthcare services.

In general, there is a gap between different non-ePolicies and policies of the information society. This gap is first of all at the level of perception which naturally is embodied in tangible policies, decisions and institutions. eGovernment and eHealth are seen as a supplementary tool to improve the respective domains, but not as a core part of it, representing certain logic and attitude towards the user.

II.2.5 International and EU practices

In 2003, the World Bank conducted a comprehensive study “Lithuania. Aiming for a Knowledge Economy” whereby the issue of eGovernment was addressed among a number of other issues, albeit very briefly. The possibility of user interaction and the one-stop-shop principle in public eServices was emphasized (World Bank, 2003). The study was widely disseminated in Lithuania and played a big role in making people understand the purpose and the principles of eGovernment.

The “eEurope +” initiative has helped Lithuania, just as other new EU member states, to join the “eEurope” programme. In general, the majority of strategies on the information society and even implementation plans are very close derivatives from the appropriate EU documents. The incorporation of local characteristics varies case by case, however, the trend is to follow the EU line as close as possible. Funding from structural funds is a crucial factor as well – projects are prepared according to funding possibilities, therefore the content and the actors are much influenced by funding conditions.

Independent discussions and intellectual search were more characteristic of the early stage of the process in 2000-2002 when the very concept of the information society was explored. Later, more EU-level guidelines and initiatives emerged; some provisions arrived in the form of the EU directives. However, certain signs of possible changes in the attitude exist. Local IS policy makers (the ISDC in the first place) start realizing the gap between the formal compliance with the EU benchmarks and the actual value to the consumers.

The Commission Communication “i2010 – European Information Society for Growth and Employment” was discussed in the Information Society Development Committee of the Parliament and was recognized as a very important document to Lithuania. The responsible institution (the Ministry of Communication in this case) expressed fears regarding presumable big differences with the already approved national Lisbon Strategy Implementation Program and emphasized the need for measurable benchmarks to evaluate the progress. The Communication was considered while preparing the new *Program for Information Society Development* in Lithuania (2006).

The first serious discussions on eHealth development in Lithuania started around 2002 in the scope of Lithuania Health Project (Project ID: P035780), the implementation of which was funded by the World Bank. Under the project, funds for ICT development in healthcare were allocated. In order to ensure proper use of funds, a precondition to prepare a comprehensive eHealth development strategy was put forth to the Ministry of Health by the World Bank.

In 2003 consultants of the Swedish company TietoEnator submitted a report on eHealth Optimal Model by the Health Ministry’s assignment. The proposed eHealth development model for Lithuania

complied with the developments in European eHealth domain, including the provisions of eEurope 2005: An Information Society for All.

The Commission Communication “e-Health – making healthcare better for European citizens: An action plan for a European e-Health Area” was one of the most important documents, which encouraged the Ministry of Health to prepare a qualitatively new document - eHealth Strategy for 2005-2010. The strategy provisions and eHealth development directions comply with the action plan of the Communication.

In 2005, according to the provisions of eHealth Strategy for 2005-2010, a feasibility study on eHealth development (roadmap) was prepared by the Ministry of Health. While working on the feasibility study, several specific aspects of the experience of EU countries in the utilisation of information technologies in healthcare systems were analysed: (1) spheres of utilisation - in which spheres of the healthcare system they can be used, what software and infrastructure are required, what are the aims of utilisation of information technologies in health administration; (2) recommendations - what are the main recommendations for creating successfully operating systems; (3) practical experience - practical information on the national eHealth projects implemented in the EU; (4) market review - review of installers of eHealth system and the situation on the market of existing solutions.

The experience of the following EU countries was considered as the most valuable for Lithuanian eHealth projects: Denmark, the UK, Greece, Switzerland, Italy and Sweden.

One of the preconditions for ensuring a successful application of information technologies in healthcare is that all institutions related to healthcare should adopt and agree on a set of common standards. These agreements and agreed standards must be used not only inside the countries, but also shared among them. Therefore the recommendations of the Report from the CEN/ISSS eHealth Standardization Focus Group “Current and future standardization issues in the eHealth domain: Achieving interoperability”, were taken into consideration while preparing the proposals for eHealth development and reflected in the feasibility study.

At present the national eHealth system (the pilot project on the development of the national core of the eHealth system (2005-2006)) is under design. The system is going to be based on the following internationally well known standards:

Architecture of the national eHealth system	HISA, Integrating Healthcare Enterprise (IHE), Service Oriented Architecture (SOA)
Medical terminology and classificators	ICD (10), LOINC, SNOMED (in the future)
Medical information	HL7 v3 messaging, HL7 CDA Level 2, HL7 HER-S functional model, IHE
Common/technical standards	Web Services, XML, WSDL, SOAP, OASIS (Web Services security) PKI, SSL and others.

Health project (2006-2009) (Central Project Management Agency, 2006) as a continuation of the pilot project, has several success factors namely, the drafted project is in full correspondence with EU recommendations in terms of sequence of achieving project results, substance and technical implementation conditions.

II.2.6 Connectivity of policies with actual projects

Although the strategic documents for eGovernment are in place, the implementation of eGovernment is not fully in line with their guidelines. Some of the principal conceptual provisions of eGovernment adopted in 2002 were ignored in drawing up the 2003 action plan for the implementation of the conceptual framework for eGovernment, while the existing policy on coordination and supervision of eGovernment projects runs counter to some of the established provisions.

The conceptual framework for eGovernment stresses individual initiative of government agencies in developing eGovernment projects. It seeks that governmental agencies coordinating eGovernment projects perform the role not of a manager but of a supervisor and co-ordinator. Unlike the conceptual framework, the action plan for the implementation thereof specifies in detail what services and in what way should be put on the Internet. The plan provides for the implementation of eGovernment „from the top.” This approach considerably increases the risk to inaccurately reflect consumers’ needs.

In addition to that, a centralized model of implementing eGovernment poses the risk that eGovernment will be instituted only formally, i.e. that processes will be transferred to the electronic environment without rationalizing them. There is enough evidence to state that it has happened exactly that way.

The central institution, driving the eGovernment process in Lithuania, is the ISDC which is a rather competent and innovative team. However, the faults mentioned are valid first of all due to objective limitations of the administrative body to grasp the most urgent needs of consumers and, second, due to political vulnerability of this institution when the interests of influential political actors (parties, ministries) are at odds with the department’s agenda.

There are reasons to believe that the defects of the “top-down” down approach are better understood today, at least by the ISDC, therefore new projects (a one-stop-shop platform for eServices, first of all) emphasise the coordinative nature of the centralised systems (the platform, National data management centre, eDocument exchange in state institutions) and relatively big autonomy of public institutions in their eServices provision.

Unlike the national authorities, municipalities have assumed another approach. Every municipality is instituting eServices separately. There are opinions that municipal functions are unified and procedures can be typified and thus bigger efficiency in terms of money and time could be achieved. True, there are also opposite opinions: that these savings are not worth closing local initiatives and restricting competition. Anyway, the institutions coordinating eGovernment projects haven’t stated any grounded approach towards this issue.

The action plans for the implementation of eGovernment pay no heed to another important aspect of the adopted conceptual approach. The conceptual framework stipulates that private investment and co-operation with the private sector are vital for a successful execution of eGovernment projects. Private investments would ease the burden that the public administration reform inflicts on the state budget. Also, delegation of government functions (public-private partnerships, outsourcing) to business entities would guarantee effective service provision as private firms are interested in maximizing income from their provided services. Yet, the implementation of eGovernment does not provide for such type of tenders. eGovernment implementation action plan contains no reference to the private sector whatsoever. The provision of online public services, which could be effectively ensured by private entrepreneurs, is delegated exclusively to government-run enterprises.

The role of the society and academic establishments in reshaping public services, which is accentuated in the conceptual framework for eGovernment, did not find an adequate expression in the Action plan (2003) either. Public involvement in the policy-making process is mentioned only in a single paragraph, one which provides the Ministry of Education and Science’s website to be used for discussion groups on relevant topics. The contribution of specific educational establishments is not mentioned at all. One can have an impression that the contribution of society and educational institutions is not a government priority, even though this contradicts the government-adopted conceptual framework for eGovernment. This only confirms a supposition that eGovernment-related requirements are imposed on government institutions „from the top” according to certain prejudices which are based either on habits or EU practice, necessarily making allowance for the needs of the Lithuanian society.

eHealth

The central institution responsible for eHealth development is the Ministry of Health, which lacks the appropriate skills and competencies needed for the deployment of eHealth. Within the Ministry, eHealth was understood as the development of a certain information system for monitoring and benchmarking of healthcare indicators. This attitude is also reflected in the Implementation Strategy of Healthcare Reform's Aims and Objectives for 2005-2011, approved by the Minister of Health in 2004 (Ministry of Health, 2004). In this Strategy, the development of information technologies is presented as one of the domains of healthcare reform management, but not as a necessary tool for the realization of specific goals of the reform. The abovementioned document presents ICT development as a method, which shall allow increasing the amount of data for accounting, improving data quality, accuracy and their suitability for the assessment of implementation of healthcare reform tasks as well as for substantiation of decision making.

However, not enough attention was given even to the development of information systems as the Ministry of Health understands it. The national information system Sveidra was mainly initiated by the State Patients Fund, seeking to ensure proper allocation of the OHIF and timely settlements with healthcare providers and pharmacies. The Lithuanian Health Information Centre at the Ministry of Health, responsible for collecting and processing statistical information about the state of populations' health at national level, continues to collect data in paper format until now.

It is obvious that the ICT benefits of implementing the tasks which are posed by the goals of healthcare policy are hardly understood among health politicians. So far, it has explained the casual attitude of the Ministry of Health as regards the development of eHealth policy: eHealth strategy for 2005-2010 was prepared in 2004; however, (writing in autumn 2006) it has not been approved officially until today.

The main guidelines for the eHealth development are currently presented in the Strategic Guidelines for Information Society Development, 2005. The document stresses the population's need for eHealth services. However, according to the Information Society Development Programme for 2006-2008, the priority is given to the development of a national health information system and to the development of an ePrescription system. Currently, the projects which are under implementation comply with the Programme. It stands to reason because the ISDC, responsible for the coordination of the programme, is also responsible for the selection of the projects to be financed from the state budget and EU funds.

Municipalities and healthcare providers have a possibility to initiate various eHealth projects to be implemented from their own funds. In this case, the institutions themselves are free to set the priorities for eHealth projects. As practice shows, such projects are more patient-oriented. Good practice examples are available from Vilnius Centro Polyclinic and Vilnius University Hospital Santariskiu Clinics – these institutions are the leaders in implementing the systems that provide patients' booking for an appointment via the Internet. These projects completely conform to the spirit of the Information Society Development Strategy which primarily accentuates the need to develop eHealth services for population.

II.3 Actors

II.3.1 Involved institutions and the division of the tasks among them

Prime Minister's Office and Ministries. The Government of the Republic of Lithuania consists of the prime minister and 13 ministers. The government chancellor's office is in charge of legal and executive supervision. The chancellor's office is generally weak and performs a very limited role. The prime minister's office performs the functions of policy coordination and implementation.

The degree of attention paid to the issues of the information society (IS) depends directly on the competence and energy of the prime minister's advisor for IS, as this influence is not institutionalised in permanent institutional arrangement with defined responsibilities. The prime minister himself seldom takes interest in IS. The prime minister chairs the Information Society Development Committee which adopts political decisions at cabinet level. The ISDC is quite influential, but its

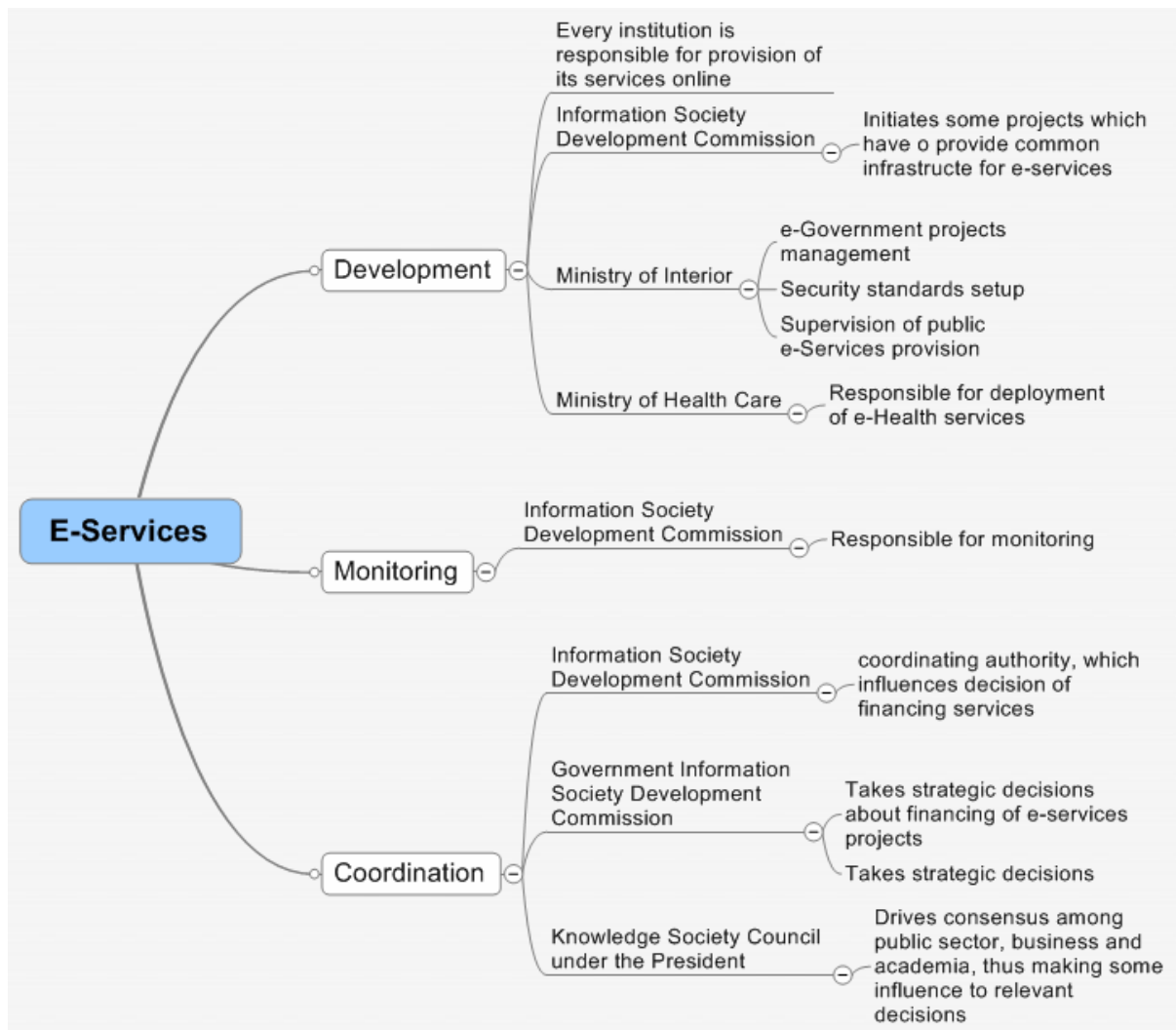
sittings are rare and the quality of its work depends largely on the prime minister's advisor overseeing the committee's work. There is no separate ministry dealing specifically with the issues of the information society in Lithuania (but the establishment of such a ministry is under consideration). Supervision of IS-related issues is dispersed among several ministries. The existing ministries deal with specific areas within their competence. Every ministry is responsible for eGovernment projects in their respective fields of activity and for their IT expenditures. The Constitution of the Republic of Lithuania does not provide for the position of minister without portfolio or the position of deputy prime minister. Vice-ministers are top government officials personally responsible for specific areas. None of the top officials exercise political responsibility for IS development.

The Information Society Development Committee under the Government of Lithuania is authorised to coordinate eGovernment affairs. The ISDC is in charge of coordination and certain functions of financial allocation. Due to a highly institutional structure and practice of the government, dissemination of „best practices,” joint procurements, etc. are virtually non-existent among the authorities. IT issues within ministerial competence are fully under the supervision of ministries. Ministries compete for their budgets and are not interested in joint administration thereof.

Local governments are run by municipal councils elected in local government elections. Municipal councils elect, and are led by, mayors. Municipal council administrations are headed by directors. Local governments have their own budgets which are composed of the personal income tax, local dues and charges, and subsidies and compensations for central government-delegated functions which are transferred from the state budget. The institution and implementation of most eGovernment projects are within the municipal competence. Certain municipally-run projects are initiated by the ISDC, the business community, and civil society organizations.

Pursuant to the national eGovernment strategy, all state institutions are obliged to participate in developing eGovernment projects, as every institution has an obligation to provide their services online. The government appoints institutions responsible for managing, coordinating and monitoring eGovernment projects and for supervising digital technology-based public service provision.

Figure 11. Structure of the institutions that develop, monitor and coordinate eServices



According to the action plan for the implementation of a conceptual framework for eGovernment (2003), the Ministry of the Interior has been authorised to manage eGovernment projects and to supervise digital technology-based public service provision.

The Information Society Development Committee under the Government of Lithuania (Information Society Development Committee) is responsible for coordination, monitoring and assessment of eGovernment projects and for drawing up plans for the information society development (these plans include both eGovernment and eHealthcare projects). The ISDC, together with other institutions, participates in drafting strategic documents.

The Knowledge Society Council under the President of Lithuania is a consultative body (Parliament of the Republic of Lithuania, 2005), which provides proposals on the state's knowledge policy formation and implementation. Members of the council are politicians, representatives of academia, business, etc. This is not an influential body that organises very infrequent and irregular meetings.

The Government Information Society Development Committee section (ISDC) adopts political decisions on IS issues at cabinet level. Members of Commission are some ministers of the acting Government. The Commission takes strategic decisions and takes the Government's commitment for their implementation.

Municipalities are free to initiate the implementation of various eGovernment and eHealth projects at municipality level. In principle, they have numerous services to provide, but they considerably lack understanding, finances and competence to initiate projects and to run them. According to the law, the central government cannot oblige municipalities to provide any eServices as these services are not within the list of so-called delegated functions. Many municipalities are not satisfied with this situation and would be willing to accept some sort of a simple standardized package. In 2003, ISDC carried out a pilot project and implemented standardized services in 20 municipalities. Despite various opinions in society regarding centralization, it is very likely that a standard-package approach will be developed further.

In technological terms, the Communications Regulatory Authority is also involved in the information society projects.

eHealth

The Ministry of Health is directly responsible for eHealth development, it is the main institution which initiates eHealth projects at national level.

With regard to the eHealth development process, it should be noted that adequate strategic management and planning at national level is missing. The capacity of the MoH department in charge of eHealth is very limited. IT division consists of 5 persons, two of which are responsible for supervision of computer network of the MoH. There are no ministry-level professionals who are capable of steering the national eHealth development.

Coordination of activities between the MoH and the ISDC is also weak. The MoH is responsible for strategic planning of eHealth activities, whereas the ISDC is responsible for the assessment and selection of projects to be financed by EU structural funds. According to the existing regulation, organizations may submit eHealth projects directly to the ISDC. The Ministry of Health is not involved in the pre-assessment nor is the assessment of eHealth projects; therefore the probability of duplication of activities among the projects remains rather high.

Other health policy shaping institutions such as the Parliamentary Committee on Health Affairs, National Health Council at the Parliament do not participate in eHealth development.

II.3.2 Role of PPP

The private sector participates in eServices provision in a very limited scope and roles. The public sector is used to consider the business as a supplier, not as a partner. So, though the framework for eGovernment expresses preference to PPP strategies, they have never been realised.

It should be noted that the Law on Public Procurement and especially public procurement practices do not recognize the needs of public organizations for strategic partnerships and long-term relationships³⁸. This puts both business and public organizations in “shopping around” mode and gives focus to short-term goals.

Though true PPP with risk sharing are not practiced in Lithuania, the public sector purchasing pattern is changing. There is a growing practice of equipment leasing, hosting, even outsourcing in some cases. Although these practices do not involve business deeply and do not share the risk, they do make the financial burden distributed over years, and make technical competence that businesses possess easily accessible.

Practices of letting business deliver public eServices are yet exceptions. Authentication of users to tax inspection through banks and payments by SMS messages for car parking in Vilnius are the examples of a breakthrough in thinking. These were the examples of an exceptional trust in the business sector. Yet, it should be noted that in these cases no genuine PPP occurred – the infrastructure of business is being used for delivering public services. No investments and risk sharing occurred on the business side.

³⁸ It is a default practice to purchase even services through open tender procedure, while EU accepted practices show that complex or undefined scope services tenders are more effectively procured through negotiation procedures.

Theoretically, it is obvious to both the public and the business sector that PPP has a role in development of eGovernment:

- The public sector lacks human and financial resources.
- The public sector lacks ideas and technical competence.
- All these resources and competencies can be accessed through business.

Yet, it is obvious that with no publicly accepted examples of PPP, the public sector views this path as risky. Also, it can be mentioned that, psychologically, the public sector conceives itself in the opposition to business, so in the areas where public services have to be provided it is feared that business can do harm.

Furthermore, EU financing makes financial resources available for the public sector to create eServices; this undermines the motivation of the public sector to engage in such “risky and complex” enterprises as PPP.

II.3.3 Other important actors

Window to the Future (Window to the Future, 2006) is a private companies’ alliance which joined their funds in order to promote Internet penetration. They aim to provide the necessary shared infrastructure and give the basic knowledge to Lithuanian citizens. This alliance prepares citizens to use eServices, thus making an impact on the demand and acceptance of eServices.

Association Infobalt (Infobalt, 2006) represents IT companies. The association has grown into an influential organization which, through its members, conferences and public relations campaigns, promotes the ideas of eLiteracy, a consistent eGovernment development approach, prioritization of ITT industries, etc.

Association Knowledge Economy Forum (Knowledge Economy Forum, 2006) promotes the concept of “knowledge economy” and its importance for Lithuania’s well-being. The Knowledge Economy Forum (KEF) identifies five breakthrough directions: biotechnology and pharmacy, technologies of light, information technologies, telecommunications, electronics and mechatronics. KEF is active in promoting innovative economy ideas, a high education reform and EU funds distribution to identified priority directions.

The Open Society Fund Lithuania (G. Soros Foundation) (Open Society Fund, 2006) supported projects of Information and Communication Technologies (ICT) infrastructure development in schools and public institutions from 1990 until 1998. In 1998, the strategy was shifted to promote eContent, recognizing the business ability to sponsor the infrastructure. The Open Society Fund launched a number of projects on ePublishing, eInformation, eHealth, and eCommunity and alike for about six million litas. The OSF not only funded projects but also organized training and seminars to improve the applicants’ capabilities.

II.4 The legal framework

II.4.1 General eGovernment and eHealth related legislation

Legal acts that are the most important for eGovernment and eHealth development are marked in bold in the table below and their content is described in detail.

Table 8. Major eGovernment and eHealth related legislation

No	Date	Title	Content
Law VIII-1822	11 July 2000	On electronic signature	It transposed EU eSignature directive, without taking regard to local conditions. The law envisaged the same legal force with hand-written signature only in the case of Public Key Infrastructure (PKI) qualified-certificate.
Government resolution No 884	5 July 2001	On the approval of the by-laws of the Information Society Development Committee (ISDC) under the Government of Lithuania	It defines the functions, objectives, operational organization and financial control of the ISDC and stipulates the coordination of the application of ICT in state governance by the committee.
Government resolution No 1625	22 December 2001	On the approval of a National Strategy and Action plan for Security of Information Technologies	It lays down the requirements for protection of electronic data and consumers thereof.
Government resolution No 568	23 April 2002	On the approval of Electronic Signature Supervisory Authority	The ISDC was appointed as eSignature supervisory authority
Law IX-934	6 June 2002	On the amendments for the law on electronic signature	It provided for eSignature to carry the same force as a hand-written signature and to be admitted as evidence in court if the parties agree.
Government resolution 2108	31 October 2002	On the approval of requirements for certification service providers issuing qualified certificates, requirements for eSignature equipment, procedures for the registration of certification service providers issuing qualified certificates, and regulations on the supervision of eSignature.	
Government resolution No 480	18 April 2003	On the approval of General Requirements for the Websites of State Institutions	It sets out general requirements for the websites of state institutions.
Parliament resolution No 739	30 June 2005	On the Approval of the Procedures for Setting payment terms for State Registers and Cadastres data supply	

No	Date	Title	Content
Government resolution No X-383	10 November 2005	On the Right to Receive Information from Public Institutions	According to the law, public institutions are obliged to provide public information (with the exception of confidential information) for all users on non-discriminatory principles. The law has been amended to implement the EU directive on re-use of public sector information (2003/98, 17 November 2003).
ISDC resolution Nr. T-127	30 December 2005	Rules for eGovernment portal functioning	The rules define interconnection of eG service providers and information systems with eGovernment portal aiming at the implementation of one-stop-shop principle; identification of eGovernment portal users as well as payment terms.
Decision No. V-12 of the director of the Archive department	11 January 2006	On the approval of Management Rules for Electronic Documents	It sets out detailed rules how electronic documents shall be managed and stored in public institutions.

All legal acts are available online at the Lithuanian Parliament (Seimas) database http://www3.lrs.lt/dokpaieska/forma_e.htm

As the table indicates, legislation on eGovernment-related issues is rather wide. Strategic documents are numerous as well. However, a hierarchy or a clear logical structure is absent. Therefore, it is difficult to understand which guidelines or conceptual frameworks are and will be actually followed, and which are just mere formalities.

In practice, the best-followed documents, indicators and projects are those related to the EU initiatives, such as *Information Society Development plans*, the implementation of which is monitored and which are periodically upgraded. Documents that are not of an EU-wide framework, such as those on the public administration reform and register integration, are of secondary concern. Presently, *Lisbon Strategy Implementation Plan* is the document that captures the attention of politicians, public officers and society in general. Different means for the implementation of the plan have been elaborated (the Ministry of Economy is an institution in charge). The means of the plan's implementation are debated in the public as well, the issue of eGovernment issue being among them. After several years of preparation, a document which is very important for practical implementation - *Management Rules for Electronic Documents* – was adopted. Specific issues regulating legislation, such as eSignature, registers, security, etc., are in place, and there have been no eGovernment services inhibiting provisions indicated so far (see Chapter 7 on eSignature and registers).

Safeguard data privacy and protection. The concept of privacy protection receives much attention in eGeH developments. Supervision of the data protection issues in Lithuania is the function of the State Data Protection Inspectorate (State Data Protection Inspectorate, 2006). The Law on Legal Protection of Personal Data defines the legal framework for data privacy and the functions of the Inspectorate. The Inspectorate itself describes its mission as “ensuring high level of private data protection” (State Data Protection Inspectorate, 2006).

The State Data Protection Inspectorate was very active in 2005–2006 and proposed amendments to the law which would strongly limit the use of a personal identification code of an individual in the

business sector, as well as ensuring the rule of “opt-in” principle in electronic space. These ideas are described in relevant EU directives and are being adopted with variations in EU countries. However, their adoption in Lithuania tends to take extreme forms, as if data protection could be considered as the only value that needs to be protected. Businesses that have to use personal identification data on a day-to-day basis estimate that one-sided, strict implementation of data privacy restrictions might lead to a deteriorated environment to run a business and is inconsistent with the reality of the knowledge economy.

In sum, it can be stated that the entire legislation in this area has been aligned with the EU requirements and in most cases it has been initiated by them and that there are no essential legal constraints for the development of eGovernment services.

eHealth

However, this cannot be said about the legal background of eHealth. In this case the legal basis is far behind the demand for the services and the market’s readiness to provide them. The major current legal constraints affecting the development of the eHealth are related to the following issues:

1) ensuring the security of the information about the patients,

eHIS development has to be ensured by the system of concepts, classifiers and common standards (in cases when institutions exchange data about patients and various personnel access the necessary data). The system should regulate the protection of patient data usage; ensure patient privacy and dignity, securing that personally identifiable information is kept safely and its confidentiality is retained. No doubt, patients must be confident that healthcare professionals intending to use the patient’s private data for purposes other than those of healthcare will need the patient’s consent, otherwise they should confine to personally unidentifiable data.

A single patients’ register is absent in Lithuania. Each provider collects data about the patient on his own. Some institutions have databases in which information on these patients is registered. Some healthcare institutions may feed personal data of their patients directly into their own local IT. Some institutions use IS Sveidra. As a matter of routine, IS Sveidra receives some of the patient data stored by healthcare institutions that are financed by the State Patient Fund.

At present the patient is not asked for permission to collect and to use his/her data.

The current legislation regulating the confidentiality in sharing information and patient records derives from the period when healthcare was considered a static, not process-oriented activity as it is today. The main law regulating the confidentiality of patient records is the *Law on Patients Rights and Compensation for Damage to their Health* (1996). However, the current legislation often does not take into account the increased mobility of both patients and healthcare professionals. Legislation is based on paper medical records. It is not fit for electronic information processing, and a great amount of information needs to be stored, received, handled and communicated without being at the same time an obstacle for healthcare.

2) identification of patients, medical and administrative personnel at national level;

Access to geographically-distributed information requires the patient identifier to expand beyond an institutional level. The existing institution-based medical record numbers are adequate to manage patient identification only within that institution. It is essential to have a solid identification method that could identify individuals uniquely across the country. The entire healthcare industry, including patients, providers and regulatory bodies, will benefit from the development and application of a Unique Patient Identifier. Information and communication technologies needed to develop and use such an identifier are currently available.

3) development, introduction and application of general standards, classifiers at national level.

Most of the standards are still in a pre-standard development phase. The core principles of the standards remain the same, countries and product manufacturers gradually accept the standards and use them in practice. The standards are being developed laboriously and are made up of interrelated

standard systems. Lithuania needs to primarily follow them in order to avoid mistakes that were made by some other countries in absence of proved and universally accepted standards for eHIS development strategy. From the organisational point of view, it would be expedient to establish a technical committee for electronic health.

Reimbursement is another important issue for eHealth services development. No legal acts to regulate reimbursement of eHealth services have been adopted so far. This is even more relevant as reimbursement procedures for Health services are not transparent and well-defined either.

II.5 Specific ICT infrastructures

II.5.1 General ICT infrastructure in the public sector

In the period of 2000–2006, IT has become an absolute necessity in public sector organizations in Lithuania. National statistics for the year 2005 shows the following:

Table 9. The use of ICT in the public sector

Computers connected to the Internet in Public Sector organizations	79.8%
Employees who use computers at their workplaces in Public Sector	72.5%
Employees who use the Internet at their workplaces in Public Sector	60.1%

Source: Statistics Lithuania, 2005

Still, government institutions lag behind the business sector in terms of IT usage. Public institutions with their own websites accounted for 60%. In 2005, half of all state and municipal institutions provided services on the Internet, up from 33.5% in 2003. The level of transposition of basic public services to the electronic environment in Lithuania stood at 64% in 2005, up from 50% in 2004, the Information Society Development Committee reports. According to data until May 2005, the total number of eGovernment services was 733 (Information Society Development Committee, 2005).

In general, IT awareness about the business needs of institutions is low. IT departments are generally focused on:

- user productivity needs (e.g. Office productivity tools);
- basic Internet services delivery (e.g. e-mail, web, Internet connectivity);
- implementation of absolutely needed back-office systems (e.g. ERP/accounting, document management).

IT personnel mostly think about infrastructure improvements, software licensing problems and keeping IT infrastructure alive for these basic functions.

It is very rare that IT personnel are concerned about the real business needs of business units and it is even rarer that it delivers value in the eyes of business in their organizations.

Creation and use of shared services. The framework for eGovernment identified that eServices will need basic data sources and services, first of all registers, identification engines, etc.

According to laws, registers in Lithuania are created and kept in electronic format. Still, in most cases they are not exposed as services for common usage:

- Only the Centre of Registers, which maintains land cadastre and register of legal persons, has created necessary infrastructure and exposes their interfaces as web services for international access. So, with well-managed technical infrastructure, the main and very substantial drawback of the Centre of Registers remains a special status of the enterprise, which let them charge fees that cannot be afforded by other public institutions to use the data.

- Other registers give access to their data publishing snapshots of their relevant data. This created a myriad of tightly coupled applications that are very sensitive to even minor changes. This makes access to data very difficult and breaches of security very wide.

So shared data sources were not created and this remains a roadblock to the development of eServices.

eHealth

A general level of computerization in the institutions of the healthcare system is low, technological infrastructure thereof consists mostly of old equipment, and information technologies are rarely used in the provision of healthcare services. Providers of healthcare services have created mostly their own information systems in response to the need for concrete information. In many smaller hospitals, especially those of rural areas, the only computerized organizational units are their accounting divisions.

A survey on the use of ICT in healthcare institutions was first carried out in spring 2005. According to the survey, 94% of healthcare institutions with 10 and more employees had PCs and 91.3% used the Internet. However, healthcare institutions have only 9 PCs per 100 employees and 7 PCs with the Internet connection. Health care institutions with their own website accounted for only 25.4% in 2005.

Table 10. The use of ICT in the healthcare sector, 2005

Institutions with PC, %	94
Institutions with the Internet, %	91.3
Number of PC per 100 employees	9
Number of PC with the Internet per 100 employees	7

Source: Statistics Lithuania

Various state registers and databases with epidemiological and other health-related information are being created. At the moment, the Ministry of Health has 38 registers in its domain.

II.5.2 The Use of Service Oriented Architectures (SOA)

Service Oriented Architecture (SOA) is a concept of structuring enterprise data and functions into meaningful business functions, which then are exposed as easily reusable components. Through an integration engine, they are collected into a variety of business processes which are easily conceivable and can be changed with little costs.

This concept of IT architecture is gaining momentum in Lithuania, but its influence on the public sector is still very insignificant, while some other countries³⁹ have accepted such high-level state-wide architectural patterns.

The concept of eGovernment indicated that a certain “book of standards” would be created which would describe high-level architecture of public sector data and services. This has not been accomplished yet, and all institutions are to find their own way.

II.5.3 Service support description against service levels, ITIL standard implementation

IT in the public sector has evaded the influence of formal service delivery and support ideology so far.

Though, to some extent, IT Infrastructure Library (ITIL) ideology is familiar to the public sector, these concepts are basically not used for internal IT organizations management and benchmarking. The concepts of “service levels” are applied only to external suppliers, mostly telecoms, which propose these kinds of agreements as their standard.

³⁹ Estonia

ITIL is not required in any legal form, so service levels are not obligatory for any public services. The only pressure to organizations' IT and management was put in the case of major failures where business / public became extremely dissatisfied with the failure of a service. But these cases are viewed more as public relationship disasters, so they are treated accordingly.

Very few organizations have implemented service desk functions with at least an incident management process.⁴⁰ Though help desk phone numbers exist in nearly every organization, necessary organizational structures and processes are not put in place.

II.5.4 Broadband and Internet access technologies

The broad-band penetration rate stood at 5.76% in October 2005 and ranked fourth among the new EU member states. It was 1.7 times higher than the average rate (3.43%) in the new EU member states. It is projected that Lithuania will reach a broad-band communication penetration rate of 52% by 2010. Broad-band communication provided via xDSL technologies constitutes less than 50% of the market in Lithuania, and the share of the market of broad-band communication provided with other technologies is 57%, the best indicator in the EU-25. A recent EC report notes that technological competition in the broad-band communication market in Lithuania is the most intense in the entire EU.

Mobile operators provided Internet for 76% of all users in 2005 while in 2003, 50% of users were served by incumbent fixed telephony operator Lietuvos Telekomas. During the period of 2000–2006, Lietuvos Telekomas concentrated on providing broadband access to the Lithuanian population. It was quite successful and there was a notable increase of broadband usage in this period. Broadband in Lietuvos Telekomas is provided by ADSL technology, the network has high connectivity standards and provides up to 4 Mbps.

Cable TVs have strived to provide broadband access through their existing cable TV infrastructure. Advanced cable TV networks (www.skynet.lt) exist which installed optic cables infrastructure, while some others still use coaxial cables. Cable TVs though generally provide moderate-quality connectivity offering up to 10 Mbps throughput.

The project RAIN, a broadband network to connect rural areas, is financed from EU structural funds. The project has not started yet. It aims to make big throughput optic connections to rural areas and offer low-cost broadband connections even to areas where commercial broadband would not be offered because of its cost-ineffectiveness.

Table 11. Internet access provision by technologies (percent, 2003–2005)

Time period	Dial-up	Mobile communication networks	xDSL	LAN	CTV networks	Wireless communication lines	Other
1 st half of 2003	51.6	8.9	16.3	5.5	10.2	4.7	2.9
2 nd half of 2003	29.3	29.3	16.9	6.8	12.4	2.9	2.4
1 st half of 2004	19.4	48.4	12.4	7.1	8.6	2.2	1.9
2 nd half of 2004	8.7	66.1	9.9	6.3	6.3	1.8	1.4
1 st half of 2005	5.2	67.9	11.0	5.9	6.0	2.2	1.8
2 nd half of 2005	2.2	76.1	9.7	4.4	4.6	1.7	1.3

Source: Communications Regulatory Authority

⁴⁰ Customs department of Lithuania

Table 12. Internet access provision in healthcare institutions (2005)

Institutions by number of employees	Dial-up	Mobile communication networks	DSL	LAN	Wireless communication lines	Other
Total	91.3	n.a.	44.2	n.a.	25.4	7.8
10-49	83.4	n.a.	23.6	n.a.	33.6	7.0
50-249	100	n.a.	67.9	n.a.	17.9	7.4
250+	100	n.a.	65.1	n.a.	13.3	10.8

Source: Statistics Lithuania, 2005

II.5.5 Identity infrastructure

The infrastructure of user identity was created by Lithuanian banks and is used for their eBanking applications. As it is widely accepted, banks are in the position to uniquely identify their users and are very strict on physically identifying a person while issuing identity credentials. Though the most popular authentication technologies used by banks are not considered to be very safe, they provide a considerable level of security, which users trust for their financial transactions.

Currently, over 800 000 users in Lithuania have electronic identity credentials issued by banks.

These mechanisms of identification were accepted by the population and first used as vehicles of identification for interacting with the Tax Inspection (e.g. income declaration, value added tax (VAT) declaration, etc.).

The ISDC initiative, under development for creating a platform for eServices (briefly described in II.2.2; on problems associated with identity infrastructure refer to II.7), is starting to provide public institutions with a central mechanism for citizen identification. One of the means of identification used is eBanking user identification. The idea of the project is to provide public institutions with a central citizens' authentication mechanism:

- It allows flexibility in actual identification means, such as eBanking, mBanking, ID cards, etc.
- It removes the complexity of every institution signing agreements with banks or other institutions providing identity checks.

Some other developments are in progress outside the ISDC project. The Central Election Committee is analysing the feasibility of electronic voters' identification for voting on the Internet. Electronic banking identification is one of the options which may be used for the purposes of voters' identification.

The Information Society Development Committee holds responsibility for supervising the certification market and certifying certification authorities. In 2005, qualified certification authority UAB "Skaitmeninio sertifikavimo centras" was certified, though it did not perform any activities in 2005. Two companies use foreign qualified certification authority AS „Sertifitseerimiskeskus“(Estonia) for their business needs.

So the private PKI infrastructure has been already created and certified, yet it is not used for public eServices provision on a full scale. There is an initiative of ISDC for secured communication by using PKI among public institutions which use ISDC-owned infrastructure at this stage. As noted in ISDC eSignature progress report for 2005 (ISDC, 2006), there is a number of institutions that, in short term, will be implementing eServices employing eSignature. The report optimistically states that the usage of eSignature is growing and will become increasingly more and more widespread.

II.5.6 Technical background

Open Source Usage. A lasting discussion has been taking place on the role of open source (OS) in the public sector in Lithuania. ISDC has programmes for support of open source development and supporters of open source try to secure a more favourable position of OS against commercial software. Secondary education is penetrated by Microsoft technologies which are provided at extremely favourable prices.

Others stand on the ground of total cost of ownership (TCO) principle and argue that decisions have to be taken without regard to ideological concepts, but rather counting the cost of purchasing and the usage through all the lifecycle of software.

This discussion is underway and there are no signs that either of the sides can win at national level.

II.6 eServices provision

II.6.1 Overview of eServices provision

According to data of May 2005, the total number of eGovernment services was 733 (Information Society Development Committee, 2005). The level of transposition of basic public services to the electronic environment in Lithuania stood at 64% in 2005, up from 50% in 2004, the Information Society Development Committee reports.

Business-designated government services are being transmitted to the Internet faster than services for private individuals. In 2005, the rate of transposition of business-designated government services reached 76% (up from 60% in 2004), while the rate of eGovernment services for private individuals was 56% (44% in 2004). Basic public services are supplied at the second level on average, which means that many governmental institutions offer application forms or blanks online but the submission of completed forms via the Internet and electronic supply of services is not possible. The most advanced eGovernment services are related to income declaration, public libraries information search, social payments, customs declarations, and statistical reporting. It is planned that by 2010, 40% of the population will be using eGovernment services, 95% of basic government services will be provided electronically, and 70% of all eGovernment services will be rendered under a one-stop-shop system.

Bellow is presented the evaluation of eServices in Lithuania according to IDABC framework.

Within this framework, the stage of sophistication is measured as the existing service level against possible service sophistication level.

Following service definitions and evaluations are based on institutions providing services feedback, as collected by IDABC. Evaluation of services sophistication is not changed; in some instances definitions are updated.

II.6.2 The costs involved

The major breakdown of expenditures for information society technologies by source of financing is provided in the table below.

Table 13. Expenditures for the information society by source* (million EUR)

Financing source	2004	2005
Investment funds from the state budget	33	39.7
Current funds from the budget (estimated)	20.3	23.2
Investment funds from the EU	17.7	18.6
Total	71	81.4

Source: The Information Society Development Committee under the Government of Lithuania

* Official data on expenditure for eHealth development in Lithuania are not available.

Private agents' participation in eGovernment projects is practically non-existent. In a few positive cases, private investments were rather leveraged, than made for this specific purpose:

- The use of Internet banking identification for eServices provision in the Tax Inspection. In this case, already existing eBanking user identification technologies were made available to the use of the Tax Inspection free of charge. The costs incurred by adaptation were negligible.
- The use of SMS transport for car parking payments in Vilnius and Kaunas. SMS transport infrastructure was built and used for commercial purposes prior to this project. So investments in building car parking payment application were negligible. Rather substantial expenditures are needed for public awareness and a user education campaign, and part of them was made by mobile operators.

II.6.3 Eight services provided for business

Social contributions for employees	
Responsibility	Central Government, State Social Insurance Fund Board
Website:	http://www.sodra.lt/
Sophistication stage:	3 / 4
The State Social Insurance Fund Board has developed an application based on open source software, which helps companies to build up a report about their employees' social contributions. Reports are sent by e-mail and are automatically put into a central database.	

Corporation tax: declaration, notification	
Responsibility	Central Government, State Tax Inspectorate
Website:	http://deklaravimas.vmi.lt/
Sophistication stage:	4/4
<p>An electronic declaration system is available in Lithuania since 2004. This fully transactional system enables electronic filing of all tax returns: income tax returns, corporate tax returns, VAT returns, etc. Its key features include: multiple ways to fill-in and submit declarations, notification about the status of declarations, multiple authentication methods, centralised archive, data exchange with other systems, new designs of return forms, declaration process monitoring and management. 60-70% of enterprises submit their data electronically.</p>	
<p>The ISDC action plan 2006-8 provides further measures for improving the system in terms of usability, functionality, and proactive information.</p>	

VAT: declaration, notification	
Responsibility	Central Government, State Tax Inspectorate
Website:	http://deklaravimas.vmi.lt/
Sophistication stage:	4/4
<p>An electronic declaration system is available in Lithuania since 2004. This fully transactional system enables electronic filing of all tax returns: income tax returns, corporate tax returns, VAT returns, etc. Its key features include: multiple ways to fill-in and submit declarations, notification about the status of declarations, multiple authentication methods, centralised archive, data exchange with other systems, new designs of return forms, declaration process monitoring and management. 60-70% of enterprises submit their data electronically.</p>	
<p>The ISDC action plan 2006-8 provides further measures for improving the system in terms of usability, functionality, and proactive information.</p>	

Registration of a new company	
Responsibility	Central Government, State Enterprise Centre of Registers
Website:	http://www.kada.lt/
Sophistication stage:	2/4
<p>Information and forms for downloading.</p>	

Submission of data to statistical offices	
Responsibility	Central Government, Lithuanian Department of Statistics (Statistics Lithuania)
Website:	http://www.std.lt/
Sophistication stage:	3/3
The website of the Lithuanian Department of Statistics provides electronic forms for the submission of statistical data.	
The ISDC action plan 2006-8 lays down measures that will enhance the collection of electronic statistical data, will remove duplicates and will allow accessing and analysing data. The Implementation ends in 2007q3.	

Customs declarations	
Responsibility	Central Government, Lithuanian Customs
Website:	http://www.cust.lt/
Sophistication stage:	4/4
An electronic declaration system operates in the biggest territorial customs of Lithuania. It makes it possible for traders to deliver declarations via the Internet by making a contract with territorial customs.	
The ISDC action plan 2006-8 defines a project which will allow declaring and serving imports locally, notwithstanding in which country the item was actually imported. Further integration of customs data, including Intrastat. Management of customer relationship. One-stop-shop system for all customs operations.	

Environment-related permits (incl. reporting)	
Responsibility	Central Government, Environmental Protection Agency
Website:	http://aaa.am.lt/
Sophistication stage:	1/4
Information only.	
The ISDC action plan 2006-8 defines a project which will allow requesting permits online and permits issued online. Planned for 2008q4.	

Public procurement	
Responsibility	Central Government, Public Procurement Office, Official Gazette
Website:	http://www.valstybes-zinios.lt/ http://www.vpt.lt/
Sophistication stage:	2/4
<p>Tenders notices and results notices are published since 2003.</p> <p>Registered users can publish tenders in the website of the Public Procurement Office. A central electronic public procurement portal is currently under development, which will be introduced in phases and will provide means for full cycle public procurement performance in electronic space.</p>	

II.6.4 12 services provided for citizens

Income taxes (declaration, notification of assessment)	
Responsibility	Central Government, State Tax Inspectorate
Website:	http://deklaravimas.vmi.lt/
Sophistication stage:	4/4
<p>An electronic declaration system is available in Lithuania since 2004. This fully transactional system enables electronic filing of all tax returns: income tax returns, corporate tax returns, VAT returns, etc. Its key features include: multiple ways to fill-in and submit declarations, notification about the status of declarations, multiple authentication methods, centralized archive, data exchange with other systems, new designs of return forms, declaration process monitoring and management.</p> <p>Starting from the year 2006, the user is provided with all information about income that the Tax Inspectorate possesses about a person.</p> <p>The ISDC action plan 2006-8 provides further measures for improving the system in terms of usability, functionality, and proactive information.</p>	

Services of job search by labour offices	
Responsibility	Central Government, Ministry of Social Security and Labour, Lithuanian Labour Exchange
Website:	http://www.ldb.lt/
Sophistication stage:	3/3
The website of the Lithuanian Labour Exchange enables job seekers and employers to advertise and browse CVs and job vacancies.	
The ISDC action plan 2006-8 defines three measures which will facilitate self-service for job search and add necessary functionalities for information about vacancies.	

Social Security Benefits
The ISDC action plan 2006-8 defines two actions in this group which will let residents submit their requests to the State Social Insurance Fund as well as receive information electronically. Action deadline 2007q4.

<i>Social security benefits - Unemployment Benefits</i>	
Responsibility	Central Government, Ministry of Social Security and Labour, Lithuanian Labour Exchange
Website:	http://www.ldb.lt
Sophistication stage:	1/4
Information only.	

<i>Social security benefits - Family allowances</i>	
Responsibility	Central/Local Government, State Social Insurance Fund Board, Local Authorities
Website:	http://www.sodra.lt/
Sophistication stage:	2/4
Information and forms for downloading.	

<i>Social security benefits - Medical costs (reimbursement or direct settlement)</i>	
Responsibility	n.a.
Website:	n.a.
Sophistication stage:	n.a.
<p>This service is not relevant for Lithuania. There is no need for Lithuanian residents to ask for any reimbursement. Costs for some medicine are covered by mandatory health insurance and Lithuanian residents pay only part of the cost for such medicine, which is not reimbursed. Pharmacies register every such purchase and provide appropriate information to the State Patient Fund and are reimbursed directly.</p>	

<i>Social security benefits – Student grants</i>	
Responsibility	Central Government, Higher education institutions
Website:	http://www.aikos.smm.lt/
Sophistication stage:	2/4
<p>Information and forms for downloading. Students get grants from their higher education institutions through the banks directly without filling any forms. Supported students can get social grants by filling in an application (some higher education institutions present application forms in their websites) and bringing appropriate documents.</p>	

Personal Documents

<i>Personal Documents (passport and driving license) – Passport</i>	
Responsibility	Central Government, Ministry of the Interior, Migration Department
Website:	http://www.migracija.lt/
Sophistication stage:	2/3
<p>Information and forms for downloading. Passport applications are handled by local police branches.</p>	

<i>Personal Documents (passport and driving license) - Driving License</i>	
Responsibility	Central Government, State enterprise “Regitra”
Website:	http://www.regitra.lt/
Sophistication stage:	1-2/3
<p>Information only. Driving license applications are processed by “Regitra” which then passes applications to police branches that issue driving licenses.</p>	

Car registration (new, used and imported cars)	
Responsibility	Central Government, State enterprise "Regitra"
Website:	http://www.regitra.lt/
Sophistication stage:	1/4
Information only. State enterprise "Regitra" is implementing a project on "the integration and transfer of car registration services to an electronic environment" which is supported by the EU structural funds.	

Application for building/planning permission	
Responsibility	Central Government/Regional authorities/Local authorities
Website:	http://www.vtpsi.lt/
Sophistication stage:	1/4
Information only. A Building/Planning Permission and Construction Supervision Information System will be designed, implemented and legalized for issuing building/planning permissions electronically by the end of 2007.	
The ISDC action plan 2006-8 defines a project to continue efforts for making this service available online. No deadline defined.	

Declaration to the police (e.g. in case of a theft)	
Responsibility	Central Government, Ministry of the Interior, Police Department
Website:	http://www.policija.lt/
Sophistication stage:	1/3
Information only. Electronic notification is available via e-mail, but then the declaration must be re-filled in writing at the police station. An electronic notification system for illegal internet/digital activities is available on the website of the Cyber Police.	

Public libraries (availability of catalogues and search tools)	
Responsibility	Central Government/Regional authorities/Local authorities
Website:	http://www.libis.lt/
Sophistication stage:	3/3
<p>The Lithuanian Integral Library Information System (LIBIS) enables users to search and request books. It is still being developed and will involve more and more Lithuanian public libraries in counties and municipalities.</p> <p>The ISDC action plan 2006-8 indicates that further development of LIBIS will take place. The implementation of the project will allow the search for resources and their certain use. The project will facilitate the use of electronic material.</p>	

Certificates (birth, marriage): request and delivery	
Responsibility	Local authorities
Website:	N.A.
Sophistication stage:	1-2/3
<p>Information mostly. Some municipalities offer forms for downloading. The Ministry of the Interior, together with the Residents' Register Service and Jurbarkas municipality, is implementing a project on "the transfer of the service for certificates (birth, marriage) to an electronic environment" (feasibility study), which is supported by the EU structural funds and will last until the 2nd quarter of 2006.</p>	

Enrolment in higher education/university	
Responsibility	Central Government, higher education institutions
Website:	http://www.lamabpo.lt/
Sophistication stage:	2/4
<p>General information about application procedures to enter one of the 16 Lithuanian universities and forms for downloading.</p>	

Announcement of moving (change of address)	
Responsibility	Central Government, Ministry of the Interior, Migration Department
Website:	http://www.migracija.lt/
Sophistication stage:	2/3
Information and forms for downloading. The Ministry of the Interior, together with the Residents' Register Service and Jurbarkas municipality, is implementing a project on "the transfer of the service for announcement of moving (change of address) to an electronic environment" (feasibility study), which is supported by the EU structural funds and will last until the 2 nd quarter of 2006.	

Health-related services (interactive advice on the availability of services in different hospitals; appointments for hospitals)	
Responsibility	Central Government, Ministry of Health
Website:	http://www.sam.lt/
Sophistication stage:	1-3/4
Information only. There is no centralized system of health-related online services, though some healthcare institutions provide online services such as appointment bookings. The Ministry of Health has prepared a project 'Doctors advice via telephone' which is being tested.	
The ISDC action plan 2006-8 defines two measures: To continue building a national eHealth system, which will ensure data exchange between hospitals, doctors and patients and which would allow different implementation of health related eServices. To create an ePrescription system.	

II.6.5 Comments on some of eGovernment services

Tax inspectorate

Services related to income declaration, corporate income tax and value added tax are supplied by means of the State Tax Inspectorate's electronic declaration system EDS which can be accessed on the Internet (<http://deklaravimas.vmi.lt>). This website can be used to download, complete and submit tax declarations which have the same legal power as personally signed and manually submitted declarations. User authentication is conducted with the help of user identification systems of banks, mobile operators and the tax inspection.

In 2006, 46% of declarations by private individuals were received online (in 2004 this number was 5%, in 2005 – 17%). Legal entities use the system for their purposes at the same scale. The service started to operate in 2004 (together with universal tax declaration) and since then application usability has been significantly improved. In 2006, the Tax Inspectorate carried out a rather wide information campaign, reminding citizens about the tax obligation as well as helping them to do it electronically. A call centre of the Tax Inspectorate, the creation of which was financed by Phare, should be mentioned in this respect. Another motivating message was the promise of the Tax Inspectorate to transfer tax returns to those who provided declarations electronically prior to all others.

However, further improvements of the system are still needed and are envisaged in the plans of the Tax Inspectorate. The system is not easy to understand for a regular user, and the explanations are

scant and formal. It is especially obvious when the choices for customers are explained by pointing to legal documents. If declarations appear to contain errors or inconsistencies, customers have to switch to the manual-telephone regime as online notifications do not always specify the nature of mistakes. In 2004, 40% of eDeclarations had mistakes, in 2006 – 20%. The security of the system should be further improved.

Still, basically it is a single best example of eServices implementation and acceptance in Lithuania. Though some shortages remain, benefits of the system were so obvious to citizens and companies that the service took off and went as a mainstream in the third year of functioning. The main factors of success:

- The least possible amount of new technologies. The usage of the banking identification system was overwhelming as users did not have to learn new steps for filling forms.
- No additional steps were required to use the service – if a person has an eBanking account, he/she is able to use a declaration service. No additional visits to the Tax Inspectorate and no additional agreements are needed.
- The software for filling forms and its logics did not change. This continuity makes learning possible, so the spread of knowledge takes place.
- Marketing activities were crucial to promote the service. The Tax Inspectorate invested in a public relations campaign, advertisements, teaching points in supermarkets, etc.

A total of EUR 3.5m has been invested in the Electronic Declaration System (front and back office) so far.

Lithuanian Labour Exchange

Information about job vacancies and job-seekers is announced on the Lithuanian Labour Exchange's website (www.ldb.lt). Here companies can offer information about their vacancies, and job-seekers can place personal information. Announcements are made online, and this service is fully electronically supplied.

The electronic supply of vacancy and job search has markedly increased the effectiveness of these services. Employer-employee agreements can be concluded faster and more effectively as the Internet provides the most effective way for two-way interaction if communication takes place among large and constantly changing groups and with indefinite frequency.

Lithuania's integral library information system

Lithuania's integral library information system (LIBIS) offers a consolidated catalogue which contains information about the documents (books, audio records, periodicals, etc.) possessed by Lithuania's major libraries. Although LIBIS ranks at the highest level for this type of services according to the European Commission's provisions, in reality this consolidated catalogue positions on the third level because it offers neither online reservation nor online reading possibilities. The only service it provides is information about the place where documents are held. The benefits of the online supply of this service are convenient use and more effective work of the libraries.

Lithuanian Department of Statistics

The Lithuanian Department of Statistics (Statistics Lithuania) offers many of its survey forms online (www.std.lt) and accepts electronic data in Microsoft Word format. The state here plays the role of an institution collecting market data. The department's clients can submit data online and do not seek any government-issued permits related to their rights, except for the official acknowledgment that their submitted data have been received. In this case increased procedural effectiveness is the biggest benefit of eGovernment.

Customs Department

Customs declarations. Business companies can declare goods online if they sign agreements with territorial customs offices, use appropriate equipment for online customs declaration of goods (at present the ASYCUDA system is in use) and have adequately trained personnel for the performance of this task. However, printed copy of electronic declarations and supporting cargo documents have to be submitted to the customs office in addition to the electronic declarations. For this reason, contacts with customs officers are unavoidable, and customs declarations are not fully automated.

Public Procurement Office

Public procurements are conducted online on two public procurement Internet portals: the Official Gazette's public procurement portal (www.valstybes-zinios.lt/vpp2/) and the public procurement portal of the Public Procurement Office under the Government of the Republic of Lithuania (www.viesiejipirkimai.lt).

The Public Procurement Office's portal offers sellers and bidders more possibilities to reach agreement in the electronic environment. The portal offers information not only about buyer organizations and about specific purchases but also classified information about producers and their output. In addition to that, unlike the Official Gazette's portal, the Public Procurement Office's portal provides services for registered users free of charge. The portal offers a catalogue of goods and services, allows online communication between buyers and bidders and makes it possible to obtain precise information about the terms of public procurements.

Registered users of the Official Gazette's portal can access electronically classified information about public procurements announcements, information about the results of concluded public procurements, and information about winners and their bids. The portal charges on a subscription base and boasts higher usability, better quality of information, etc.

Centre of Registers

Online services supplied by the State Enterprise Centre of Registers are designed to increase its operational effectiveness but not to institute changes in the register-related public administration system (even though strategic plans define integration of registers as a priority objective). The State Enterprise Centre of Registers offers clients advanced order of documents, which eliminates one visit to the centre, but clients have to visit the centre to receive their commissioned documents. Given that documents issued by the State Enterprise Centre of Registers (for example, on real estate property) are very important in any economic transaction and the time factor can be decisive, this is a very significant service for consumers and it is vulnerable in terms of corruption.

Payments for car parking

Payments for car parking are functioning from the year 2000 in Vilnius and Kaunas. Users send specifically formed SMS, or use SIM card pre-programmed menu accessed interactively through mobile phone menu. Users are charged normal car parking payment (2 or 3 LTL per hour), plus 0.2 LTL for SMS. The user receives confirmation that payment is accepted and, if he/she wishes, a reminder that the parking time is ending. After a number of years in service, the usage of the system remains low, amounting to approx. 10 000 parking transactions per month. This remains very low income application for telecoms, and a fractionally small revenue channel for municipality from overall parking. The main impediment to bigger service usage is awareness of public about the service. Municipality and Municipality-owned parking company have not found motivation so far to push this service forward, while telecoms find costs of investing into marketing prohibitive.

Other services

All kinds of business permits, licences and authorizations have been issued in the traditional manner so far. Government permission is required for virtually any type of business activity. This conditions an overly complicated system of permit issue because the application of clear rules when any kind of business activity is subject to regulation is hard or even impossible.

The Information Society Development Committee's eGovernment portal (Information Society Development Committee, 2006), which registers links to all online public services, contains links to 16 categories of business permits. Unfortunately, electronic services which are related to specific business permits are provided in a very fragmented manner. Very few cities provide rules and forms for obtaining business permits online. In most cases municipal authorities provide information and forms for print (the second level) but not online forms.

Construction permits and permits for building dismantling are issued in a similar way. The Information Society Development Committee's portal offers links to the websites of very few municipalities, while the criteria for permit issue are unavailable; they are realized mostly at the second level.

Online issue of personal documents is at the first and second levels only.

II.6.6 eHealth services

Services provided for citizens

Information services

There are not many eHealth services available in Lithuania. However, the extent of health information services in Lithuania is rather wide to provide the kinds of information most needed by patients and the wider public. Websites have become an information source within many organisations as well as for the people they serve.

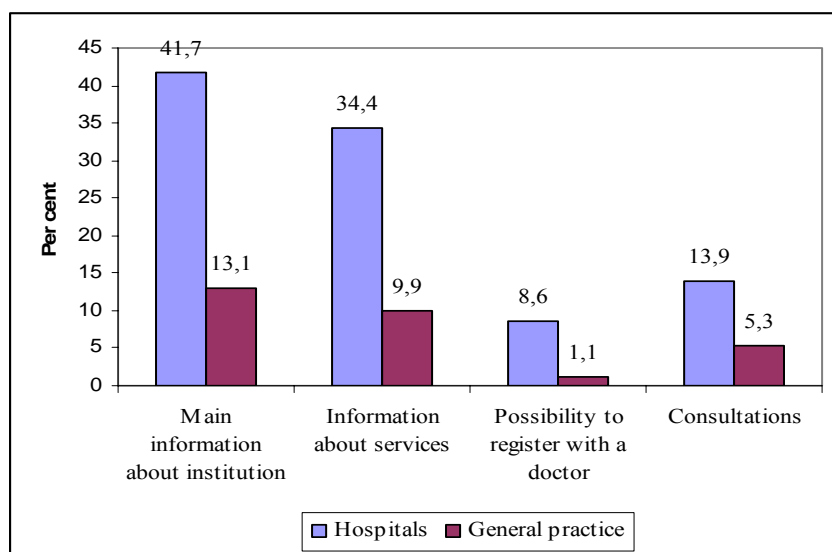
There are specialized websites focusing on information about certain diseases such as diabetes, heart diseases and so on. Public and private health institutions also have their websites, mainly containing information about the services provided. Apart from the public sector websites, a large number of commercial eHealth portals are online. www.sveikata.lt is the biggest portal on healthcare issues (it is non-governmental), providing links to health institutions, GPs, and related websites targeted at specialists as well as the society in general. Other popular commercial portals for doctors but also patients are www.medicina.lt. There are possibilities to ask a specialist a question on some health portals www.supermama.lt, <http://www.spa.lt/konsultacijos.phtml> but integrated quality control is absent.

Until now, there is no governmental portal on public health policy and issues in Lithuania. Information on this domain is fragmented and dispersed among websites of various institutions.

Interactive communication in Lithuanian health portals is not possible. There is a possibility to ask questions and address them to a specialist, but there are no guarantees of getting an answer.

At the moment, not all healthcare institutions have their own websites. Information about available healthcare services and doctors is not sufficient. The diagram below presents the findings of Statistics Lithuania on the purposes of Internet home page of hospitals and institutions of general practice.

Figure 12. Purposes of Internet home pages (% , 2005)



Source: Statistics Lithuania, 2005

On-line booking for an appointment to doctor's admission

Online booking for an appointment is a new development in Lithuania. Currently, only few health institutions allow users to book a visit to the doctor online. For example, the website of the Centre Polyclinic in Vilnius and Vilnius University hospital Santariskiu Clinic provide an online registration service: <https://registracija.pylimas.lt/>; <http://www.santa.lt/index.php?-1068589318>. There is a big demand for such kind of services among the population.

To register via the Internet one must go through several steps (finding the online application form; filling it in and choosing preferred hours for a visit, and sending it). The patient receives information whether registration was successful. There is also a possibility to cancel a registration.

Online consultations

Online interaction between patients and doctors is very unusual in Lithuania, and there is no official recognition of such correspondence. There are no possibilities for official online interaction with the patient's doctor in Lithuania. Interactive communication with health institutions and medics is under development. Online consultation is available on a number of websites, but diagnosis in the true sense of the term is not provided. The possibility to post a question on a certain health matter exists. Answers are posted on the website within a week. There is also a possibility to receive answers privately by e-mail. However, nobody takes any responsibility for correctness of the information provided by such services.

Telephone consultations

The Minister of Health has published (April 2004) a decision on Telephone Consultation by Medics. It regulates, for the first time, the procedure and payment for telephone consultation services provided by doctors. Prior to that, telephone consultations were not regulated and officially not provided - although it has been a common practice for a long time already (without doctors receiving any remuneration for it). The Decision defines quality criteria for service provision via the telephone. The implementing agency of the pilot project is a private health organization Management Centre of Medical Services and Information. <http://www.mpvc.lt/lt/>. Remuneration procedures for consultations by phone are defined by the institution.

Pharmacy online

Private ePharmacy site www.100metu.lt was launched in Lithuania in August 2006. ePharmacy is developed as a functional site designed specifically for selling pharmaceutical and associated products.

The portal provides an opportunity for customer to place an order online and to select a drug store which is the most convenient way to collect the products. Customers are required to register with the website before they are able to order online certain pharmacy products. The site provides a comprehensive information about selected pharmaceuticals, automatically calculates co-payments if the product is reimbursed by the OHIF.

Information on validity of medicinal products

The State Medicines Control Agency at the Ministry of Health has launched a new system that allows business representatives and general population to update their information about the medicines registered in the EU Medicinal Products Register. The system also provides information about the medicinal products, with suspended validity of market authorization. <http://www.vvkt.lt/frameset.html?http://vvkt.vvkt.lt/paieska/>.

An electronic manual of medicines, information about medicines are also available in the website of the State Medicines Control Agency. It is possible to ask questions in "Questions - Answers" section of the website about the usefulness and availability of medicines and other.

Telecare and independent living services

Telecare services are still absent in Lithuania. However, there are a few pilot projects implemented in Lithuania. After implementation of a few pilot projects, clinical decision support, research and distant education from the best European medical centres became available. An extensive international database of clinical images collected in systematic manner has a great value for improvement of the patient's diagnosis, treatment, follow-up, qualification of physicians and medical students. As a result of international project Litmed 1, funded by the Swedish government, Kaunas eHealth Cluster has been established. The Cluster consists of: Kaunas University of Medicine: Hospital, Telemedicine Centre, and Institute for Biomedical Research. Kaunas University of Technology: Biomedical Engineering Institute, Telemedicine Support Centre. The Network is used for clinical practice with the main attention towards the patient and the physician. Support of clinical decisions in: ophthalmology (with applications to retinal diseases, tumours), otorhinolaryngology (with application to laryngeal diseases, rehabilitation of the patients after cochlear implantation), cardiology (user interface between cardiologist-experts with telemedicine system) are the main issues. The Network uses a synergy of clinician's communication in Lithuania and Sweden (Stockholm St.Erik Eye Hospital, Lund University Hospital) involved in teleconsultations, education and research.

Possibility to apply for the EU health insurance card

In recent years, IS Sveidra was loaded with new tasks. In 2005, the system was implemented for issuing and registering European health insurance cards. The installed system allows submitting a request to issue the European health insurance card as well as checking the validity of the card: https://kvp.vlk.lt/esdk_busena.

Registration for orthopaedic products

In 2006, the State Patients Fund created a data base which allows registering orthopaedic appliances produced for patients under contracts with manufactures, and automatically controls the terms of usage of the appliances. The system allows the patient to follow the order processing, <https://kvp.vlk.lt/OrtoPacientams>.

Services provided for business

The information system Sveidra managed by the State Patients Fund provides an opportunity for healthcare providers to check whether an individual is insured under the scheme of compulsory healthcare insurance. The system also allows making settlements with healthcare providers and pharmacies.

The Lithuanian Health Information centre has moved a number of statistical forms into the electronic environment. http://www.lsic.lt/php/aps_forms.php: there is no opportunity to fill in the forms online yet, but healthcare providers and other institutions can at least download them in the Centre's website.

A private site <http://www.vaistai.lt/> was launched four years ago. The information system is designed for pharmacies, hospitals, suppliers and manufactures. The main purpose of the system is to provide timely information about new pharmaceutical products available. There is also an opportunity to place an order online.

II.6.7 Participation of society in decision making

There are very few eServices designed specifically to allow wider interest groups to participate in decision making.

There is a legal act in power which requires all institutions to publish their drafts of legal acts online. In broader perspective, posting drafts of legal acts online is already an important step in providing interest groups' opportunities to analyse them and have their say. Still, places of publishing these drafts of legal acts are in originating institutions. Institutions post drafts of their legal acts in their own websites in whichever place they find it necessary, usually with no metadata for searching and no or limited options for influencing the process of document preparation.

So major issues of usability remain despite the existence of drafts of legal acts on the Internet:

- There are very many places of posting drafts of legal acts. There is no central depository or an eReference place for consistent access to these drafts. It must be noted that such a depository for legal acts adopted in the Parliament exists and is accessible free of charge (http://www3.lrs.lt/dokpaieska/forma_1.htm).
- There is no metadata in drafts of legal acts. So browsing and searching is very complicated.
- No “push” mechanisms are available so that users might register their interests and receive alarms about new legal acts under preparation, in order not to visit the website regularly to see if anything new has appeared.
- There are usually no transparent mechanisms for interest groups to influence the act under preparation.

The website of the Communications Regulatory Authority contains a section “Public consultations” where they invite interest groups to express their opinion with regard to legal acts under preparation (Communications Regulatory Authority, 2006). There is an e-mail address provided for every draft of act under consultations; when the consultations are over, the opinions are posted online, in some instances accompanied with the position of the Authority on these opinions.

The Ministry of Health carries out public consultations on some drafts of legal acts, however, they are not publicly announced.

The Seimas of Lithuania (Parliament) is one of the biggest sources of legal acts since it has an extensive database with all drafts of legal acts and acts in power. Drafts of legal acts are posted as soon as a member of parliament registers a draft in the document management system, so this is done before any procedure with this document begins. Though there is no metadata and transparent feedback opportunities to influence drafts, the Parliament is currently developing a project on the “push” mechanism that would enable users to register and receive information about new proposals arising in their spheres of interest.

So there is no fully functional system of interest-group participation which would contribute to the legal act's preparation. In general, it might be noted that motivations for eDemocracy services are insignificant:

- There is little pressure from public for participation in decision making. The public is sceptic about the possibility to influence decisions.
- Politicians misused the concept, stating that posting of the draft somewhere on the Internet itself is already “a public consultation”. The fact that an interest group was sent megabytes of

information with a very short notice is used as an excuse not to pay attention to their complaints afterwards.

Essentially the real problem lies in the basic motivation. If institution does not want public's participation in decision making, it successfully uses the Internet as a disguise, not as a vehicle for public consultation. Best practices of public consultation should be developed and communicated, as well as accordingly measured, in order that public participation actually takes place.

II.6.8 The extent of one-way and two-way services

The range of eServices has been expanding markedly since the launch of information society programs in Lithuania. Yet, the progress achieved is more of a quantitative rather than qualitative nature. In 2004, the proportion of institutions providing electronic access reached the EU level and comprised about 80%, (Capgemini, 2006) an increase from a mere 50% in 2002 (SIBIS). In August 2004, about 50% of all public services were electronically supplied (TNS Gallup, 2004). According to May 2005 data, the total number of eGovernment services was 733 (Information Society Development Committee, 2005). The biggest progress has been made in providing electronic supply of 20 basic public services stipulated in EU programmes and government resolutions. There is very limited scope of two-way eHealth services in Lithuania. Online registration for visits to the doctor might be mentioned among them.

Lithuania's achievements in a wider, European context are discussed in the annual Benchmark Report of October 2004, commissioned by the Directorate General of the European Commission. The study analyses the level of online supply of 20 public services which are considered to be basic services by the European Commission. The survey by Capgemini, the author of the study, produced a score of 59% for the level of online supply of the 20 basic public services in Lithuania. This result shows that basic public services were supplied at the second level on average in 2004. This means that many governmental institutions offer application forms online but electronic supply of services is not possible. In the 2006 survey this measurement reached 68%.

In 2004, the scope of online services averaged 65% in the European countries (the second level), 53% in the ten new member-states (the second level), and 72% in the 15 old EU member-states and three non-member states. In this context, Lithuania outstripped the newly acceded neighbours but, according to the Capgemini report, fell behind the old EU member-states for two years. According to the report of 2006, Lithuania with 68% is below the average of both EU28 (75%) and EU10 (70%).

In comparison with the other new member-states, Lithuania's qualitative score of the application of eGovernment is not bad. Lithuania is going online with the EU-regulated public services on a fast track. Yet, the research in question takes the biggest interest in the fourth-level, or fully electronic services. Capgemini data produce a score of 40% for the level of fully automated services in Lithuania (both in 2004 and 2006) and in the 28 European countries, while the average score for the 15 old member-states and the three non-member states is 46% (in 2006, 50), and for the 10 newcomers, it is 29% (in 2006, 45).

The above data shows that Lithuania, on the one hand, does not fall behind the EU averages markedly. On the other hand, all of the six fully electronic public services are among the 20 EU-regulated public services. There are no fourth-level services beyond this list according to the data from the ISDC. If one calculated the ratio of fourth-level services to all online public services, rather than merely the 20 EU-regulated services, Capgemini's measured 40% ratio would be much lower (a total of 733 public services are electronically supplied in Lithuania) (Information Society Development Committee). This confirms the hypothesis that the government has so far taken the biggest efforts to implement the EU benchmark: only the EU-regulated services are being fully automated, while minimal reforms are being carried out beyond this list. In addition to that, further analysis of the real benefits of these services shows that they cannot be ascribed to the fourth level. It is most likely that the foreign experts assessed only the external appearance of eGovernment, i.e. computerisation of services but not the foundations thereof, or the optimization of public administration procedures.

The major providers of third and fourth level of eGovernment services in Lithuania are central government and large state-owned enterprises (Information Society Development Committee, 2005). Local government mostly provides information (1st level) or forms for downloading (2nd level) of eServices. The causes are multiple, to name just a few:

- State governance structure concentrates policies, financing and competencies in the central government. Local government, though providing a very large number of day-to-day services to citizens, is lagging behind with provision of eServices. They lack competence in the first place and then financing.
- Incentives for driving the creation of eServices are meagre for local government. The majority of municipalities have very small numbers of population, so investment in eService building will hardly ever pay back in economic terms. Vilnius municipality is a different example in which, with necessary competence, finances and large population eServices are driven forward.
- On the other hand, municipalities are not keen to pool their resources and look for a common solution for multiple municipalities.
- EU benchmarked services are provided through central government, so there is no EU conceived pressure to implement services.

II.6.9 Level of integration

In most cases there is little institutional integration in provision of services. Furthermore, even in the same institution different services are sometimes not integrated into meaningful patterns.

For example, the public procurement procedure requires an organization to provide to the Tax Inspection and Sodra certification in paper, which states that the company does not have unfulfilled obligations to respective organizations. No integrated approach is obvious when the company participates in a public procurement procedure in Sodra. It has to get Sodra certification from one department, which is requested electronically, and deliver it to the Sodra procurement department.

Currently, all eHealth services are very fragmented and not integrated institutionally. There is a number of projects on the development of healthcare institutions' networks relating to a referral system; the lab tests exchange is under implementation.

II.6.10 The level of provision of services to different stakeholders

Business-designated government services are being transmitted to the Internet faster than services for private individuals. In 2005, the rate of transposition of business-designated government services reached 76% (up from 60% in 2004), while the rate for eGovernment services for private individuals was 56% (44% in 2004). Basic public services are supplied at the second level on average, which means that many governmental institutions offer application forms or blanks online but the submission of completed forms via the Internet and electronic supply of services is not possible. The most advanced eGovernment services are related to income declaration, public libraries information search, social payments, customs declarations, and statistical reporting. It is planned that by 2010, 40% of the population will be using eGovernment services, 95% of basic government services will be provided electronically, and 70% of all eGovernment services will be rendered under a one-stop-shop system.

II.6.11 Effects on employment

The spread of eGovernment initiatives has influenced two trends in public sector employment.

The number of IT staff has been growing until the year 2002-2004. At the moment, stabilisation in staffing terms is observed, so IT staff faces pressure to perform more with the same number of people.

Different scenarios exist about how staffing has been influenced by provision of eServices. Still, no permanent pattern is observed:

- The Public Procurement office started to post public procurement notices online, the service that was not available before. In this example, a public eService is created in one-time effort, technologically exposing parts of pre-existing internal databases publicly. So a new service is created, but internal resources are used for that purpose as no change in the business process has occurred.
- The Tax Inspection started an eDeclaration service which resulted in the creation of a new department of declarations and freed the inspectors schedule from this task. In this case, entirely new business processes have been established, involving new roles and functions.

II.7 The systems and solutions in place and unsolved problems

There is no official policy that would prioritize eServices delivery for any of these groups: citizens, business or government. So the progress we see is evolving more or less naturally. There are no criteria which could define the strategic direction (the example of such criteria could be an impact on the national economy, cost saving in institutions, etc.).

The dynamics, currently taking place, start first of all from basic services for customers (both business and citizens) – a website with information and basic services for institutions inside – workgroup, messaging, document management, etc. It is followed by creating the main back office applications for internal use of other public institutions' information. As an institution becomes more mature, back office services are exposed as user accessible services.

However, most of the experts polled and the Lithuanian Free Market Institute (LFMI) tend to a conclusion that, because of better cost-benefit ratio and a positive impact on civil society, simple eServices for citizens are worth to be given higher priority in the state's agenda on the information society, compared to sophisticated and expensive eServices for smaller user groups.

eGovernment services depend strongly on the quality of **registers** data and the register system itself. The actions to improve both data and management of the registers are carried out in parallel. This is also a competence of ISDC. In 2005, the law on the right to receive information from public institutions was amended to implement the EU directive on re-use of public sector information. The pricing principles are also provided in the law, however, the new procedures have not been implemented yet. As commonly agreed, the biggest problems related to data quality of the registers stem from closed institutional interests and a lack of coordination among public administration institutions as well as the shortfalls of information systems (mentioned above). Integration of the state registers system, though envisaged in strategic documents, is hardly moving at all. According to ISDC, one of the obstacles to this integration is the opinion of the Data Protection Agency that this would increase the risk for personal data security.

According to LFMI, the essential problems of register management are caused by a monopoly nature of these services, which prevents register information supply to become a normal service in the market, where different information providers, complying with security requirements, would compete for users by price and service level. The issue of state register management is also seriously complicated by the fact that this type of knowledge outside the professional circles (ISDC and Centre of Registers) is very superficial for the time being. There are too few public officials in other institutions and hardly any politicians who would understand this issue well enough. This makes the topic politically sensitive (especially what regards personal data management).

Another issue that is still often presented as a crucial obstacle to eG services development is an absence of national **eSignature** (this opinion is more common among politicians). The Law on Electronic Signature came into force rather early - in 2000, however, it wasn't functioning for several reasons. First of all, the law appeared to be pure transmission of EU legislation, without a relevant respect to the market concerns. The law envisaged the same legal force with hand-written signature only in the case of PKI qualified-certificate. To meet the market demands and technological neutrality principle, amendments to the law were adopted in 2002. According to the amended legislation,

eSignature has the same force as a hand-written signature and shall be admitted as evidence in court if the parties agree. This change of legislation made new eServices and teleservices possible - especially those provided by banks, as they already had their own user authentication systems for eBanking. The latter approach is also supported by the Civil Code (effective from July, 2001) which states that eSignature is equated to the hand-written one if it is possible to identify the person and the text is protected. The ISDC, as an eSignature supervision institution, was appointed in April 2002. A set of by-laws was prepared and approved by the Committee in 2002.

Recently, the first commercial PKI-based qualified eSignature infrastructure provider appeared on the market. Some public institutions (e.g. the Tax Inspectorate for income declaration, eGovernment gateway) successfully use eSignature equivalents existing in the market (eBanking, first of all) to provide eServices. eSignature for closed systems (where participants have to sign a prior paper agreement) is rather well-functioning, however, some (not all) public services to be transferred online require eSignature for an open system.

Public institutions have a possibility to use the ISDC-issued eSignature already at present, however, only few take this opportunity both due to habitual routine and costs. Some public institutions, such as the Communication Regulatory Authority, have their own eSignature systems. While politicians, responsible for IS policy, share the opinion that national eSignature should exist, the ISDC are investigating several technologies to be applied in eGovernment services. According to plans, national public eSignature shall be managed by a new public institution, established for this particular purpose, which later shall be privatized.

Among possible technologies the ISDC, in cooperation with mobile operators, is preparing a project on mobile electronic signature (m-signature).

According to mobile operators, the implementation of mobile electronic signature will follow the already tried model: eGovernment services will use the systems that are already implemented in eBanking. Banks are interested in m-signature as a safer and more user-friendly technology. M-signature is already operating in one of Lithuanian banks and is expected to be operating in two major banks at the beginning of 2007. This project is carried out together with the Estonian centre for qualified eSignature certification and coordinated with mobile operators in Estonia. There are plans to launch m-signature in both countries with same standard and so to set a standard for eDocument as well.

Implementation of the government online (eCommunication within the government) was blocked by the absence of procedures for storing eDocuments. After the Archive Department approved the rules for the management of eDocuments (11 January 2006, No V-12), the regulation of the government can be corrected in order to allow full electronic exchange of the documents.

The National Lisbon Strategy Implementation program, which is one of the most recent and comprehensive document related to issues of the information society and which provides certain evaluation of the process, lists the **following problems in the field of eGovernment services**:

- differences in ICT use in terms of regions and social groups;
- too few people are using them;
- the infrastructure is too weak;
- too few public services are available online.

Unfortunately, no arguments for such judgement are presented in the programme, as some of the indicated problems can be seriously questioned to be the top-concerns in this field.

First, regarding the existing differences in ICT use in terms of regions and social groups. These differences result not from eServices, but from a different way of living, means and demands of people. In general, differences are indispensable characteristics of human society as of all living systems in general. eGovernment services, as all other services, are needed to different people to different extent, therefore unevenness in their consumption is a plain fact. eServices are the most

useful for busy people having easy access to a PC with the Internet connection at home, at workplaces or in the public place, therefore it is natural that certain social groups will not use eServices because they have a relatively smaller value to them.

Second, too few people are using them. According to statistical data, in 2003, around 20% of the population was using the Internet, up to 30% in 2004 and to 32% in mid 2005. Forty four percent of Internet users approached certain public institutions online at least once (Zvirblyte, 2006). According to the survey of TNS Gallup Lietuva (TNS Gallup, 2005), Lithuania is in the fifth position in the EU on the use of eGovernment services by business. More detailed data on the use of separate eGovernment services is not publicly available. The goal pursued is to achieve 40% of the population using eGovernment services and 65% using the Internet (Information Society Development Committee, 2005).

Third, the infrastructure is too weak. At the beginning of 2006, 31.7% of the population had Internet connection at home (up from 6.2% in 2003). There are 475 public Internet access points operating in Lithuania, apart from a number of the commercial ones. All experts, polled by LFMI, stated that the infrastructure is sufficient for the development of eGovernment service.

Fourth, too little public services available online. According to ISDC, there are around 700 eServices accounted at the eGovernment portal. According to ISDC, the level of eGovernment services online reached 64% in 2005 (50% in 2004). According to the European Commission Report 2005, Lithuania was the 13th among the EU members according to the accessibility of the major eGovernment services in 2004 (Capgemini, 2005). The level of public services online was 59%, while the EU average was 65% and that of the new entrants⁷ – 53%. According to the Report of 2006, Lithuania's score reached 68%, while the EU-28 average – 75% and that of EU-10 – 70%. Thus, though Lithuania is slower in implementing eGovernment services, as compared to the EU average, there is no reason to maintain that the number of public services is a problem in Lithuania.

After analysing the major eGovernment services (subchapter 6), including interviews with experts from different fields related to eGovernment services, the following problems can be indicated:

- There is a lack of simple eServices (information provision) at local and municipal level.
- More sophisticated services are not fully implemented - only part of the procedure is online. This does not release the user from dealing with related bureaucracy nor from using non-e means in the process. Thus, the potential effects of eG services are not utilized. One of the solutions could be the implementation the ISDC initiated project – one-stop-shop based eGovernment portal with a monitoring function (see chapter II.2.2).
- eServices are a mere interface – they do not rationalize the public service itself. This is a natural outcome of the fact that eG is implemented without a prior public administration (which is seriously outdated) reform. The needed reform is hardly expected to be conducted in the near future, however, the implementation of the one-stop-shop government portal, mentioned above, would speed the process.
- eServices are not user-friendly.

In generalising the main problems in the field of healthcare information, the following groups of problems can be distinguished:

- The level of automation of healthcare processes is low, the processes are not rational: administrative works require considerable work time expenses on the part of medical personnel, the effectiveness of the activities is low, and this results in the irrational utilisation of the resources in the healthcare sector.
- Information/data is fragmented. Information is collected in separate units: some information is for hospitals and some is for doctors and for governing institutions. No possibility is provided to follow the lifelong course of the patient's treatment and in different healthcare institutions.
- Information/data is often inadequate. Several useful databases exist but they are not integrated and do not satisfy the needs of all the participants of the healthcare sector.

- Information/data is not adequately relevant. There is no possibility to quickly and easily receive the required administrative and clinical information about the patient as well as methodological and empirical information.

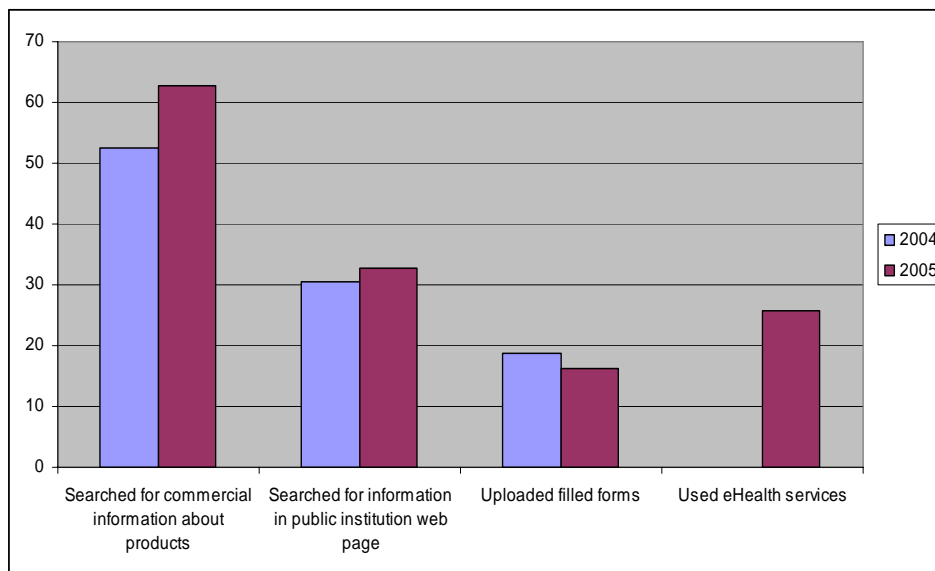
II.8 Usage of technologies

II.8.1 eServices usage indicators

According to the National Lisbon Strategy Implementation program (November 2005); in 2004, the level of public services in Lithuania lagged far behind the EU average (with the respective rates of 59 and 72). According to the 2005 survey, 15% of 15-74 year old population used online information of public institutions at least once and 6.3% were using eServices of public institutions (in 2004 and 2003, 4 and 2.6% respectively). The level of public service availability online was 64% in 2005. Services for business are implemented quicker than for the citizens (76 and 56% respectively).

The statistics of usage demonstrates that eGovernment services usage is still far below the use of the Internet for entertainment, communication and commerce.

Figure 13. Reasons for households' use of the Internet for communication with public institutions (%/year)



Source: Statistics Lithuania, 2005

Actually, according to opinion polls, people in Lithuania are rather content with eServices provided: 70% of those polled believe public eServices enable them to deal with public administration institutions at more convenient place and time, about 64% believe this allows them to receive the services quicker, nevertheless, over a half of them think that they need special hardware or software for using eGovernment services and, according to 37% of respondents, these services are rather difficult to be used (TNS Gallup, 2004). Anyway, the usage of the most popular eService of income declaration provided by the Tax Inspectorate shows that eServices are getting increasingly used – 46% of declarations were received in an electronic form.

According to the survey “The development of eGovernment services to Lithuanian citizens” (where the users of Public Internet Access Points (PIAPs) by the “Window to the Future” were interviewed) performed in May 2006, people indicated the following reasons for not using eGovernment services:

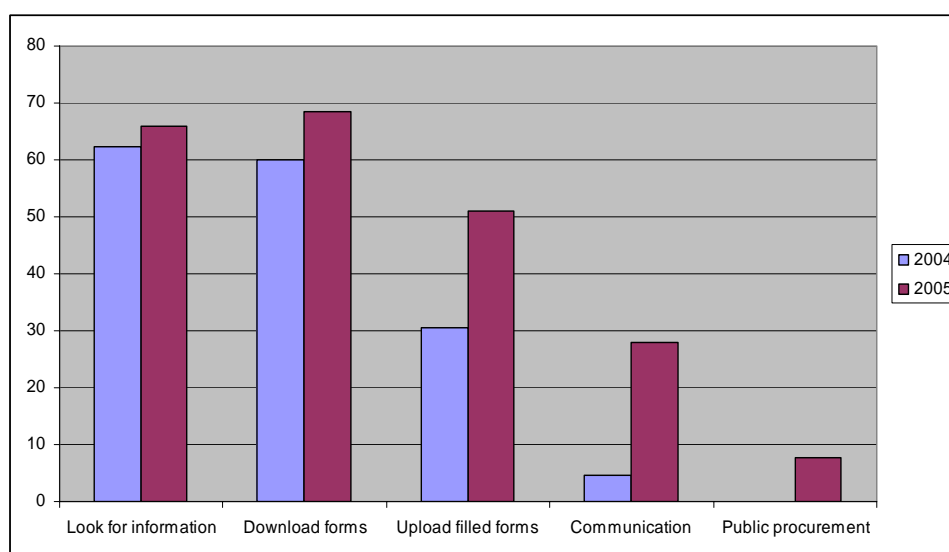
Table 14. Indicated reasons for not using eServices

The indicated reason	%*
I do not need eG services	34.5
I do not have access to the Internet	22.4
I trust eye-to-eye communication more considerably	22.4
I lack computer literacy skills	20.7
eG services are not user-friendly	8.6

* Respondents were allowed to choose multiple answers.

Statistical data about the usage of eServices by enterprises shows a general rise. The figure below indicates that uploading the filled forms and electronic communication with public institutions is undergoing a sharp increase, and new services, such as those of public procurement, are getting more popular.

Figure 14. Reasons of enterprises using the Internet for communication with public institutions

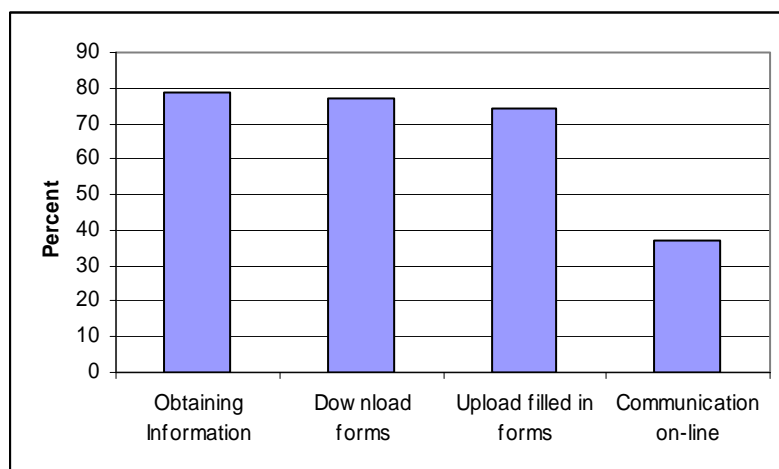


Source: Statistics Lithuania, 2005

Major information can be also drawn from the institutions which provide eServices to enterprises. The Tax Inspectorate indicates that over 50% of enterprises filled electronic forms in 2006 and that they have experienced a sharp increase since the service was launched in 2004.

According to the survey data, 79.7% of healthcare institutions have indicated that they used the Internet in the process of communication. The figure below shows that the scope of activities related to downloading and uploading various forms dominate.

Figure 15. The reasons why healthcare institutions use the Internet for communication with public institutions (percent of healthcare institutions), 2005



Source: Statistics Lithuania, 2005

II.9 The impact of eGovernment and eHealth developments

II.9.1 Assessing the impact

The concept of “impact” of eService provision requires certain elaboration. Generally, the term “impact” is used interchangeably with the term “usage” in Lithuania, while they are different indicators in their nature. For the clarity of the discussion, we provide the explanations of the terms:

- The term “usage” refers to an indication of how intensively an eService is used – how many users/transactions, etc. an eService has. It is a measure of the first level which could be easily collected.
- The term “impact” refers to some form of secondary measure which is closer to the real goal of eService provision, be it the user-satisfaction level, cost savings or other. The impact is usually measured by special means and requires analysis and complex calculations. Generally, “usage” is taken into account while calculating the “impact”.

In general, there is no practice of assessing either the usage or the impact of eGovernment/eHealth services provision. According to the formal thinking that prevails in the public sector, it is satisfactory when an eService “exists”, and it is not so when an eService “does not exist”. This means that no actions are taken to measure the effectiveness of implementations, as well as no meaningful targets for the impact are fixed. Though in many cases the usage indicators are easily accessible, they are either not used at all or used mostly for technological reasons. Cases when the implementers of an eService define usage aims are very rare.

Positive examples:

- Vilnius Municipality’s eCity team redesign *www.vilnius.lt*, aiming at achieving a double number of visitors within a year after the launch.
- The Tax Inspectorate defined their usage goals for 2006 as an increase of income eDeclaration by 15% and made all efforts to achieve them.
- The Department of Statistics forms an overall goal to increase efficiency of data collection. Three measures for accomplishing this goal have been scheduled: (1) statistical accountability online, (2) the use of data from state registers and information systems, (3) simplification of statistical accountability by optimisation of content, timing and sample size.

The ISDC issues an Information Society Development Plan which has a substantial part for monitoring data. However, this document presents data in a binary style – services either “exist” or they do not.

A measure has been envisaged in the General Programming document for preparing a set of indicators, agreed within the EU, to estimate the ICT impact. The Department of Statistics is responsible for implementing this measure and is participating in the EU working group on this issue. In the action plan 2006-8, the Department of Statistics has foreseen to measure the usage of services. However, as the ISDC admitted, despite being a responsible institution, they neither participate nor follow the process.

It must be noted that impact calculations for public eServices projects is an undoubtedly complex engagement, which would require competencies that in most cases are not present in specific institutions, while the usage data is easily accessible and could be published in a meaningful manner with minimal investment.

II.9.2 Audits by the State Audit

The State Control (National Audit Office) carries out financial and performance audit in public sector institutions and organizations. Information Systems audit is a part of overall governmental (financial and performance) audit.

The State Control carries out audit of use of funds of the European Union allocated to the Republic of Lithuania and implementation of programmes in which Lithuania participates. The State Control has been appointed as Certifying Institution of the European Agriculture Orientation and Guarantee Fund. Up to 2004, following the European Union requirements, IS audit was a constituent part of Certification Audit.

Documents of the European Commission define that the Paying Agency (National Paying Agency under the Ministry of Agriculture) has to introduce one of international IS Management or IS Security standards by 2007, and the Certifying Institution (i.e. State Control) will have to provide separate IS Audit opinion and report.

State auditors evaluate expenses for creation, introduction and maintenance of information systems, with regard to efficacy of investment. State auditors also evaluate if the management is aware about business risks that stem from audit and are these risks appropriately controlled.

Starting from 1 February 2006, IS audit is conducted in the IT Management and Audit Department. The staff of IT Management and Audit Department is ready to assist auditors in conducting the assessment of complex state information systems. This reflects growing awareness that information systems are important expenses and service items in public sector organizations, so they must be audited accordingly.

In September 2006, the State Control presented the results of the **Audit of State Information System Monitoring**. The major findings of the audit are the following:

- The heads of public administration institutions lack general knowledge on ICT strategic management;
- The control and monitoring procedures for state information systems are not sufficiently defined in legal acts;
- The ISDC is responsible only for ICT in governmental organizations, but not in municipalities, courts, etc.;
- Many public administration institutions do not have any strategic plans for their information system development;
- The budget as well as the state investment program funds are controlled much more poorly than the ones from structural funds, however, the amount of money from the former sources is much bigger;

- The ISDC, while evaluating ICT investment projects of different public administration institutions, does not consider their consistency with the strategy as well as process management. Only cost justification is looked at;
- Some institutions still manage to overcome the ISDC evaluation while submitting their ICT projects, however, a big progress can be observed in this field, as compared to several years before;
- The implementation of ICT projects is usually carried out at the very end of the year and the biggest part of the funds is used for HW purchasing;
- Project management in public administration institutions is not monitored at all, only post factum reports are submitted;
- Requirements for information systems and their security are not related with the value of the information managed in the system;
- In general, there is a big progress regarding security of state IS, however, the management of security procedures has to be improved.

II.9.3 Impact assessments by governments and authorities

In 2000, a Strategic Planning initiative was started, which aimed to set strategic plans for every institution, define benchmarks and measure how these targets are achieved.

Still, there is no common practice to define goals and measurements which would directly impact users experience in both eServices and services delivered physically. The only exceptions can be noted:

- There is an obligation to pick up the phone no later than after a fourth beep in the public institution.
- There is a defined period of time when a response must be provided to a citizen, usually in 2 weeks.

Yet, these are not true service level commitments, as phone-picking time is not measured and response-time to a request is just not implemented. Institutions consider this response-time as a norm and do not benchmark against them. So there are no goals about how long it can take for a client to wait in the queue, how long it should take to fill an eDeclaration form, etc.

In some instances institutions take steps to solve acute problems achieving a better customer care, as the ones in Vilnius municipality which established an electronic queuing system which controls and directs queues of customers to appropriate counters. But it is only half of the solution, as there are no measures taken how long customers spend in queues, so decisions are taken on visual situation evaluation.

Vilnius municipality is now considering a project to track customer waiting characteristics until the moment he/she gets a service. This will enable the municipality to make real measurements, to benchmark themselves against them, as well as analyse trends and make informed decisions.

This fulfilment of this project could be a very obvious example how constant impact assessments can be performed.

eHealth

In 2000, the Vilnius Territorial Patient Fund carried out a public opinion poll on the healthcare system in the Vilnius region. The investigation showed the following:

- 1) The public felt there is inadequate organisation within healthcare institutions,
- 2) The public is dissatisfied with the provider of patient communication quality and vice versa,

- 3) There was a perceived lack of information on which the patient could evaluate the selected treatment.

In October 2003, a public opinion survey in Lithuania showed that 47% of respondents believed that services related with healthcare would be better accessible via the Internet. General opinion was that it would be beneficial to receive more information about health, on alternative treatments, and the options for the selection of providers and healthcare services.

The detailed social and economic analysis of currently available eHealth services is absent. However, the feasibility study performed by the MoH on National Health Information System development provides some estimates on NHIS benefits.

The table below demonstrates the number of meetings with patients, which shows the workflow of the provided services. Information is currently manually collected – first of all, it is done on paper (special forms) and later is brought together from paper documents and is sent to (or verified with) the healthcare system monitoring institutions: the State Patient Fund under the Ministry of Health (SPF), the State Social Insurance Fund Board (SSIFB), the State Public Health Monitoring Service (SPHMS), and the Lithuanian Health Information Centre (LHIC).

Table 15. Number of events registered at healthcare institutions

Events Registered	Per year	Per month	Per day
Births	29,765	2,480	113
PHC encounters	22,910,700	1,909,225	86,783
Emergency aid	780,700	65,058	2,957
GP, ambulatory	14 695 500	1 224 625	55 665
Referred to SHC (specialists)	7 343 500	619 542	28 161
Discharge report after SHC specialist	7 343 500	619 542	28 161
Hospitalised	811 300	67 608	3 073
Discharge report after hospitalisation	811 300	67 608	3 073
Laboratory tests on PHC level	15 896 417	1 324 701	60 214
Results of lab tests on PHC level	15 896 417	1 324 701	60 214
Radiology on PHC level	2 180 201	181 683	8 258
Results of radiology on PHC level	2 180 201	181 683	8 258
Laboratory tests on SHC level	12 007 240	1 000 603	45 482
Results of lab tests on SHC level	12 007 240	1 000 603	45 482
Radiology on SHC level	892 430	74 369	3 380
Results of radiology on SHC level	892 430	74 369	3 380
Prescriptions	25 000 000	2 083 333	94 697
Sickness leave certificates	1 787 686	148 974	6 772
Total	120 737 827	10 061 486	457 340

Source: Ministry of Health. Feasibility Study for e-health system development, 2005

During the preparation of the feasibility study, the Ministry of Health has analysed doctor's work with patients during one ordinary encounter. The results have demonstrated an obvious lack of time, which in turn entails a series of other problems, directly influencing not only the quality of the service rendered to the patient, but also the treatment itself.

Doctors claimed that 60-70% of time designated for an appointment is taken by filling documents: health record, referrals, responses, extracts. A substantial part of the time is taken by familiarising with the patient's health record, recordings made earlier and the analysis of responses brought from other institutions of treatment. Research data showed that an ordinary consultation is usually of the following duration: GP – 15 min., specialist – 10-15 min., out of which a doctor spends 10 min. for making records, and 5 min. for examining the patient – during this time he must listen to the patient's complaints, perform examination and establish the primary diagnosis. Making extracts from health records lasts around 30 minutes in hospitals and 20 minutes in out-patient clinics.

Therefore, it is expected, as indicated in the feasibility study report, that NHIS development will help to solve today's problems related to the quality of treatment and patient's service. The main factor capable of improving the quality of patient service and treatment itself is *reallocation of the time of doctors*, which will enable the doctor to dedicate more time to his/her main task during an appointment, i.e. work with the patients (hearing the complaints, examination, provision of feedback). The study states that *efficient utilisation of the system will enable such qualitative reallocation of time*, which will allow reducing paperwork time by 30% and save 3 minutes of every patient's time. With regard to the fact that the primary diagnosis, which, according to research results, constitutes around 80% of the specified diagnosis, *is formulated during the period of examination of the patient*, this reallocation of time will not only improve communication between the patient and the GP for the benefit of the patient and save the patient's time, but will also *improve the quality of diagnostics, thus exerting a direct positive impact on the quality of the patient's treatment*.

The feasibility study results showed that the NHIS will not only enhance the economy of time of patients and doctors, which will improve the quality of services and yield economic benefit on its own, but it will also *have a positive impact on the treatment quality*.

One of the main aspects of ensuring quality is *high-quality and timely diagnosis*. Test results (images) and not only their descriptions stored in the Health Information system will ensure not just retention and transmission of data, but will also exert direct influence on the *improvement of the quality of diagnostics*. The NHIS will allow eliminating *repeated/unnecessary tests*. The results of the study performed by the Ministry of Health showed that repetitions of some tests (e.g. cardiograms) could be reduced by as many as 50%. It is expected that the NHIS will have a direct impact on the *quality of diagnostics* and further treatment of the patient as it enables the treating physician to make conclusions and prescribe treatment on the basis of the primary information (cardiograms, X-ray images, etc.). This will help prevent vexing diagnostics errors which result in weeks of inefficient treatment and will enable physicians to consult among themselves and share information. With an enhanced possibility to diagnose diseases at an earlier stage, it could be expected that *the cycle of the patient's treatment* will be shortened, and in exceptional cases the life of the patient can be saved. Another important factor influencing the quality of the doctor's work is *the possibility to obtain methodical aid*: additional information about the symptoms, medicines, disease classifications, problem of differentiation, etc. Clinical research and scientific activities will also benefit as more accurate data will be available.

Analysis of the data in the feasibility study report enables to conclude that after the implementation of the NHIS, the following could be expected:

- significant economy of the funds of healthcare institutions resulting from elimination of paper ambulatory health records, prescriptions and other documentation;
- significant economy of time of medical personnel resulting from introduction of electronic registration and electronic transmission of data;
- significant economy of time of doctors executing administrative tasks resulting from elimination of problems of processing and transmission of statistical information;
- Improvement of administrative efficiency bears direct influence on the benefit for the patient. In other words, the amount of time and money saved by a healthcare institution can be additionally allocated to the patient.

The main groups of the users of the NHIS are presented in the table below:

Table 16. eHealth services benefits per user groups

User groups	Benefit of ICT development in health sector
Patients	- Improvement of the quality and accessibility of healthcare services
Healthcare institutions	- More rational organisation of work
Medical personnel	- Improvement of information quality for healthcare processes - Optimisation of work processes
State Patient Fund	- Increased opportunities for the management and optimisation of the healthcare sector - Increased opportunities for the control over utilisation of funds
The Ministry of Health and other public institutions	- Broader opportunities for the analysis of the promotion of health - Broader opportunities for the analysis of the public health - Improvement in the quality, reliability and accessibility of information on the health of the population and the activities of the healthcare sector
Health information users	- Improved data collection process - Enhanced quality of data - Improvement in the quality, reliability and accessibility of information on the health of the population and the activities of the healthcare sector

Source: Ministry of Health. Feasibility Study for e-health development, 2005

II.9.4 The impact on the public sector and the information Society

As described above, eGovernment is treated in the strategic documents as one of the main elements of a general public administration reform. In other words, eGovernment is a tool for a public administration reform. This approach would be consequent and reasonable however, it is not implemented in practice in Lithuania. In Lithuania, eGovernment was implemented as an agenda itself, forerunning in time the public administration reform. Implementation of the eGovernment was mainly initiated and stimulated by EU policy, while the public administration reform is more of a national issue (this confirms a more general hypothesis that policies of EU competence are more actively performed in Lithuania in comparison to the ones of national competence). The EU initiative for better regulation came later than eGovernment initiatives did and is currently only at the initial stage in Lithuania (the Strategic guidelines for public administration reform were prepared directly following the European initiative, however, its implementation is only starting). This actual situation makes to look for another approach towards eGovernment and public administration relationship.

Though it was not announced officially or provided in the strategic documents, there is an idea of making eGovernment not only a tool to enable public administration reform in terms of technology, but also a tool to launch the reform itself. Namely, having quite developed eGovernment services, it is possible to create a public administration services' (bureaucratic procedures') monitoring tool, which would show evidently the bottlenecks and inefficiencies of public administration (see II.2.2). In this sense, eGovernment services would, on the one hand, facilitate launching of general public administration reform and, on the other, enable its implementation in technical terms.

Within public administration, eGovernment services in many cases are not for saving public officers' time and efforts. eGovernment services are additional, new services, running parallel to the traditional, paper-based system. For some officers it means less technical work, but for the institution it also means new functions and new investments (e.g. storing, implementing security measures, etc.). As practice of some organisations shows (e.g. the Tax Inspectorate), after implementing eGovernment services, the total number of employees and investments increase. In other cases, organisations use their own resources and no formal change in staff takes place (e.g. public procurement office). eGovernment services in public administration cause redistribution of work – some functions and jobs are abandoned, while other, new ones emerge. It is usually a shift from lower skill work to more high-skilled activities which creates value added to the users. In many cases it created tension among public officers and certain resistance to the implementation of the services online.

The net benefits of the implementation of eGovernment services are mostly related to three factors: (1) new services to citizens and business, (2) cost-cutting possibilities to citizens and business, (3) a new chance and facilitator to launch a structural public administration reform. Only after a public administration reform is carried out, cost-saving in public administration and corruption prevention benefits can be achieved by implementing public services online.

The growth of eGovernment has influenced the spread of ICT use insignificantly so far. The “killer-application“ for the ICT use was and continues to be the e-mail function – 77% of the users indicate this purpose for going online (Communication Regulatory Authority, 2005). 71% use the Internet for reading journals and newspapers, 53% for games and music. eBanking is a clear leader among eServices (23%). The growth of eBanking demonstrates two very essential potentials of the services online: they can save costs (otherwise, the private business wouldn't use it) and people are able to learn and to accept it when benefits for them are clear. Some eGovernment services, such as personal income tax declaration, can become an argument for ICT use if the service becomes more user-friendly.

Being not the decisive factor for the ICT use, eGovernment hardly influenced the level of digital divide. As for eInclusion, eGovernment services with no doubt facilitated better access to public services, which is crucial for some people, especially those living in remote places or having health problems. In this respect, eGovernment services add up to social cohesion.

A possibility to use eGovernment services instead of traditional ones makes users more independent from public institutions: their working time, behaviour of the officials and alike. It narrows down the precondition for small-scale corruption; however in most cases it does not eliminate the possibility of corruption in general.⁴¹ Also, it saves users' time and, in most cases, cuts expenses. Users of eServices are likely to become more demanding consumers of public services.

eGovernment adds to the involvement of citizens, business, and civil organisations into governance and democracy as much as governance procedures are willing to involve them. The biggest influence in this respect was done by the Parliament's online database of the legal acts together with clear and open procedures of legislation in the Parliament (operating from 1998). All drafts of legislation as well as leading documents (opinions of the Committees, individual proposals of MPs, conclusions of the Law Department and alike) are placed online immediately. All citizens, associations, businesses, NGOs and other individuals have the right to present their own opinion and proposals that are also placed online and are heard at the Committee's meeting, which is open and announced in advance. However, the same procedure does not function at the ministerial level, although legislation stipulates that. The bottleneck is not within eGovernment, but within the government system. There are technical means to place draft legislation online, but the Government has an approach to publicise only those documents, which are agreed upon by all ministries involved. After it is done, the draft usually goes

⁴¹ More on eGovernment as corruption prevention means see G. Steponaviciene, D. Mockus. Elektronines valdzios galimybes mazinant korupcija viesajame sektoriuje (eGovernment as a tool for corruption prevention in the public sector) Kaip pazaboti korupcija (How to curb corruption?), Pilietinis aljansas pries korupcija (Civil Alliance against corruption), Vilnius 2005

directly to the Government. This eliminates the stage of public consultations as such. Some ministries, municipalities or other decision-making institutions (Communication Regulatory Authority, for example) organize public consultations online. But it is not a common system as in the case of the Parliament yet, which is a serious shortcoming of the Lithuanian legislation system.

ePublic procurement system made public procurement more transparent, simple and cheap to use. PPP solutions are not common in Lithuania yet, therefore its relation with eGovernment is not an issue.

eGovernment has already added to the growth and competitiveness in terms of cost-efficiency for the users. It has a potential to diminish (to eliminate only in certain cases) preconditions for corruption. If implemented to the fourth level (full interaction), eGovernment can improve social cohesion significantly, especially for those living in remote areas as well as having mobility limitations due to their health problems.

III ASSESSMENT OF THE CURRENT DEVELOPMENTS AND TRENDS

III.1 eGovernment

III.1.1 Evaluating the current state of eGovernment developments

Main achievements:

Quantitative

Indicator	2005, Lithuania	2003, Lithuania	2005, NMS-10 av.	2005, EU-25 av.
Mobile telephony penetration, %	135	48	98	99
Mobile telephony prices, Euro/month (middle segment)	18.2	-	24.3	29.3
Broadband penetration, %	6.9	1.9	6.1	11.5
Internet access by other than xDSL technology, %	57	59	37	29
Availability of eGovernment services, % (Eurostat)	40	40 (2004)	42.4	50
Basic public services online, % (Capgemini)	68	59	70	75
eGovernment usage by enterprises, % (Eurostat)	72	65 (2004)	59	57
Residents' income declarations received online, %	46	5		

Source: Communications Regulatory Authority of Lithuania, Eurostat, Capgemini

ICT infrastructure in Lithuania has developed very rapidly in recent years. The prices have substantially decreased. Technological solutions were diversified, which makes the comparably low (23.5%, while in EU-25 – 45%) fixed telephony penetration an indecisive factor. eGovernment service supply has reached a point where usage and quality becomes the main concern.

Qualitative

- The goal to provide efficient eGovernment services is recognized and stated among policy priorities;
- The legal background for eGovernment services provision is in place: eGovernment Conceptual framework as well as its implementation plan are being prepared, updated and carried out. Legal acts for eSignature, eSecurity, personal data protection, state registers and other related issues are operating. Strategy for Public Administration Development is adopted. eGovernment and broader information society issues are incorporated into the general political agenda (Government programme, Long term State development strategy, Lisbon strategy implementation plan, etc.);
- Institutional background is in place: responsibilities are distributed among the ministries according to their responsibilities, a coordinating specialised institution ISDC is set up and operating. Relations between the responsible institutions have already gained some traditions. The problems arising stem from the deficiencies of the general public administration system;

- Communication infrastructure necessary for provision of e-services is well developed;
- Majority of public administration institutions do provide some eGovernment services and are improving them;
- An increasing number of the population is able to use eGovernment services in terms of accessibility and skills. The number of households with Internet connections has increased from 6% in 2003 to 35% in 2006. The number of PIAP's reached 475 in 2006, in 2005 94% of schools had Internet connection; the alliance „Window to the Future“ alone rendered eLiteracy courses for 20 000 of the population in remote areas;
- An increasing part of population is willing to use eGovernment services in order to save time, money and efforts. This is best illustrated by the increasing number of supplementary (information, assistance) services, provided by public administration institutions as well as the usage, e.g. the number of enterprises using eStatistical accountability in 2005-2006 increased 2.7 times; residents' income tax declarations online increased 9 times in 2003-2005, all large-scale and 97% of medium enterprises in 2005 presented their annual financial accountability online.

Main shortcomings:

Quantitative

Indicator	2006, Lithuania	2005, Lithuania	2003, Lithuania	2005, NMS- 10 av.	2006,EU-25 av.
eGovernment usage by individuals,%	13	12	7	20.2	24
Internet access at home, %	35	16	6	37.5	51

Source: Eurostat

Comparably low eGovernment usage by individuals is to a large extent caused by different incentives for individuals and businesses to use eServices as well as a lower level of supplied eServices for citizens (in comparison with business) itself. Internet access at home is at a low level both due to demand and supply factors. As a fixed telecommunication network is much less extensive than in the old member states, it took time to develop Internet on other technologies. Demand for Internet connection is also accelerating with increasing household income and changes in life-style of households. Thus, both these indicators have been increasing rapidly in recent years.

Qualitative

- Policy documents are numerous and of unclear hierarchy; not all provisions of strategic documents are followed;
- Due to the out-dated public administration structure and traditions and a scattered institutional structure for the information society policy, eGovernment and other information society issues, are often represented at the highest governmental level with less priority than the issues covered by particular ministries;
- The “owner“ of the eGovernment issue is not clear in society, which increases uncertainties in responsibilities, makes eGovernment policy formation a comparatively closed process and implementation - less smooth;
- In many cases eGovernment is implemented formally, apart from the simplification and automatization of the public administration procedures themselves, which does not allow achieving the targets of eServices – efficiency and transparency;

- The process of eGovernment implementation is laden with a lack of public administration officials' motivation and skills in project management;
- Potential attractiveness for the users of a particular eGovernment service is not estimated prior to its implementation;
- Cost-efficiency of eServices implementation as well as its different alternatives is not fairly analysed;
- Monitoring of eGovernment implementation is poor and fragmented;
- The system of evaluation of eGovernment usage and the impact on public administration is missing.

III.1.2 The Factors

General factors

Positive	Negative
Macro-economic environment in general is favourable in both demand and supply respects: the economy is growing rapidly, trade with EU and third countries is expanding, income of population is rising, unemployment is low and still decreasing, the political situation is rather stable. The introduction of the euro that was planned for 2007 is foreseen for 2009-2010.	Worrying tendencies in the macroeconomic climate are a rising level of inflation (average annual inflation was 3.7% in November 2006) and the shortage of labour force with certain qualifications (ICT specialists, healthcare professionals among them).
The microeconomic environment in the market is favourable: companies are developing and looking for new sources of competitiveness, including increased efficiency by using ICT.	
As cuts of personal income tax are planned, the concern for efficient budget spending is heightening.	The reform of public administration institutions is stagnating – the provision of efficient public services has not been recognized as an inevitable step, but taken formally as a political requirement so far.

Factors influencing usage of eServices (demand side)

Positive	Negative
Socio-cultural factors are changing. Society is getting used to eServices rapidly. There is a positive approach to using electronic means in society.	There is scarce motivation for users to go online in public administration. People are not very demanding towards public services in terms of comfort and quality at present.
eLiteracy has improved in Lithuania during the last six years markedly.	Users' modest experience in eServices. Many of the deployed eServices are user-unfriendly, so only users with high motivation and skills use them.
Accessibility of the Internet and computer literacy are very much improved in rural regions and is improving with a number of private and public initiatives running. Having set the infrastructure and basic education provided, the usage will increase naturally with new demand.	Regional disparities remain in all aspects of life, in the field of eService use as well.

Positive	Negative
Senior individuals are potentially even keener users of eGovernment services as many of them have limitations in movement. There is only a matter of time and user-friendly applications to increase their interest in eGovernment services.	Population is aging and this promises to be a long-term trend.
Due to an increase in household income and decrease in ICT prices, the share of the cost for PC and Internet in the user's income is substantially decreasing. A reduction of income tax by 30% of computer and Internet connection installation costs for citizens reduced purchasing costs (from 2003).	Relatively high costs of computer equipment and Internet connection in comparison to income, slows down the growth of potential eServices user group.
E-mail has become the mainstream communication media, eBanking – commercial killer application. Commercial services raise the population's appetite for public eServices.	Absence of “killer application” of eGovernment services – the service which would have a very obvious positive effect on the user in financial and time consumption aspects. Tax declarations could be considered as one according to the number of users; however, it is a too rare procedure for individuals to have such importance.

The law adopted in 2003, reducing income tax by 30% of computer and Internet connection installation costs for citizens, reduced purchasing costs. A public campaign about this decision and tax deductions themselves encouraged the acquisition of computers and Internet to households.

The spread of eGovernment substantially changed certain characteristics of public sector employees. The most obvious change is that new employees are required to be eLiterate and most of workplaces in the public sector require the use of computer and/or the Internet to perform everyday tasks.

Factors influencing supply of eGovernment services (supply side)

Positive	Negative
Regulation at national level in general complies with the EU requirements. No major legislation for eGovernment is missing.	Strategic documents are excessive and lacking a clear focus, implementing legislation is often inconsistent with the former ones.
eGovernment services are recognized as a priority at political level.	Priority of efficient public administration is not exercised.
eGovernment projects are implemented by the majority of institutions and municipalities.	Usefulness of the majority of implemented projects to the users and public administration is not estimated.
eGovernment target is included into the General Programming Document and various eGovernment projects are to be financed from structural funds.	Opportunities of EU funds are not used for such complicated and expensive projects as integration of the State Registers, which is essential for eGovernment services in the long run.
Technological factors are favourable: there are providers with needed know-how and experience to implement the projects.	The bottleneck is usually in the management of the project from the client's (public institution) side.

Positive	Negative
As services online are normally cost-saving, correct service pricing creates incentives for the users to go online (like in eBanking).	Public institutions often fail in assessing the costs of their services correctly and users have to pay for eServices more than for the corresponding physical services (like in eParking).
Implementation of eServices depends quite much on the personality of the leader of a public institution with respect to ICT usage.	

Within this gradually improving environment, the **most important factors** for eGovernment development are the following:

- competitive pressure for business in the global market,
- growing awareness and demand for eGovernment services among the population,
- EU eGovernment policies and their international benchmarking,
- Progress in improvement of the public administration system.

The first three are most likely to develop positively; the fourth one depends on the domestic policy and is hardly predictable.

III.1.3 Drivers and Barriers

<i>Drivers</i>	<i>Barriers</i>
<p>There are two major drivers for eGovernment development:</p> <ul style="list-style-type: none"> • (implicit) the urge for efficient public administration; • (explicit) EU programmes and initiatives in the field and financial support by EU structural funds. <p>A strong demand for an improvement of service quality in public administration is felt by business and population (for business, first of all, it is a matter of cost-saving for higher competitiveness, for population – both economic and social value). However, this demand is vaguely expressed (except for IT companies, offering their abilities to implement eGovernment projects) and hardly regarded by policy makers so far. The issue of cost-saving by using eServices is also coming to the official agenda from the supply side – the government is concerned about improving the business environment to attract foreign investors and to increase various international country ratings. An expected slowdown in economic growth also makes policy makers to search for budget saving means. Providing public administration online is also a part of the implementation process of the Service directive, which shall take place until 2009.</p>	<p>The core barrier to the implementation of eGovernment is the fact that eGovernment services are monopolies by nature therefore the effectiveness and efficiency can be only a political goal but not their necessity for survival.</p> <p>Among explicit barriers, the structure and traditions of present public administration should be named as the main one. It allows the heads of institutions to be driven by political incentives and budget allowances, without any tangible respect to the value added for the user of services their institutions provide as well as cost-saving in the institutions. The situation in Lithuania is particularly worsened by the out-dated public administration system and especially poor project management skills in some institutions (e.g. Ministry of Health).</p> <p>Defects of the public administration system are manifested in the following aspects:</p> <ul style="list-style-type: none"> • minimum concern for the user needs; • lack of skills and knowledge in eServices project management by public administration institutions; • lack of knowledge and skills in evaluating and thus choosing the best proposals for eGovernment project

<p>Availability of structural funds is a big driver for public administration institutions to initiate projects. The number of projects, presented for EU structural funding is accelerating, as institutions learn how to do it. The circle of participating public institutions, though slowly, is widening and eGovernment implementation is spreading to less prominent eService providers.</p> <p><i>Other facilitators:</i></p> <ul style="list-style-type: none"> • Ad hoc issues in public administrations that need to be solved; • Availability of businesses, keen to sell their skills of eGovernment implementation to public administration institutions; • Availability of the basic infrastructure; • Competitive pressure from other countries (first of all, Estonia): in terms of public institutions, providing eGovernment services; individuals, using the services; as well as companies, implementing them. 	<p>implementation;</p> <ul style="list-style-type: none"> • reluctance to delegate a bigger role to the private sector (outsource, sell, lease, form PPP); • defects of public procurement procedures (e.g. they allow unjustifiably extend tender procedure or even cancel it by bad will supplier; or are biased towards lowest cost vs. highest value bidder); • institutional interest to keep power and money, low incentives to cooperate with other institutions. <p><i>Other barriers:</i></p> <ul style="list-style-type: none"> • Annual character of budget funding; • Lack of compatibility and interoperability of data in State Registers as well as information systems.
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III.2 eHealth

III.2.1 Evaluating the current state of eHealth developments

There is no possibility to compare Lithuania's progress of performance in eHealth development with EU countries as there is no statistical data available for benchmarking the eHealth domain. In Lithuania, collection of statistical data in the field of ICT use in the healthcare sector was started by the Department of Statistics only in 2005, therefore, only data for the year 2005 is available.

Main achievements

Quantitative

Indicator	2005
Healthcare institutions having PCs, %	94
Healthcare institutions having access to the Internet, %	91.3
Healthcare institutions having ISDN connection, %	25.4
Persons who used the Internet for searching information about health, %	24.8
Persons who used the Internet seeking medical advice online, %	3.6

Source: Department of Statistics, 2005 survey data

Most of healthcare institutions in Lithuania are equipped with PCs and have access to the Internet. Probably the most influential regulation in terms of computerisation of healthcare institutions was the requirement to have a PC and access to the Internet initiated by the State Patient Fund as a prerequisite to sign a contract for reimbursement of healthcare services. Supply of eHealth services is very limited; yet, the Internet is increasingly used by citizens to obtain medical information.

Qualitative

- The goal to increase the number of eHealth services is recognized among the priorities of national information society development policy;
- There is a number of healthcare institutions which already provide certain eHealth services. Good examples are Vilnius Centro Polyclinic and Vilnius University Santariskiu Clinics, the institutions providing patients with an electronic booking service.
- Awareness of eHealth benefits is increasing among healthcare providers. ICT solutions which allow reducing the costs of traditional delivery involving paper forms, data entry, paper filing, are of great interest. At present, only Vilnius Centro Polyclinic has succeeded to convert the main paper forms to an electronic environment. After the computerisation of operational activities, the management of institution has improved, the average time of patients' waiting in queues has shortened.
- Experience gained in national IS Sveidra development and management is valuable for eHealth.
- The population is demanding eHealth services. Rapid development of eServices in other domains fosters the growth of eHealth services as well. An increasing number of visitors to health-related sites show an emerging interest in health information among the population.
- The project on developing the core national health information system is under implementation. According to technical specifications, the core shall consist of three sub-systems: for integration of registers; for general practitioners and for patients. In addition, software for data exchange between these subsystems and other IS shall be designed as well. This project is a real step towards EPR.
- A number of other pilot projects on eHealth development are under implementation.

Main shortcomings

Quantities

Indicator	2005
PCs at healthcare institutions per 100 employees, %	9
PCs with Internet access at healthcare institutions per 100 employees, %	7
Healthcare institutions' employees working with computers, %	18.5
Healthcare institutions' employees using the Internet, %	15.3
Healthcare institutions with Internet website %	25.4
Persons who used the Internet for making an appointment online with the practitioner, %	0.8

Source: Department of Statistics, 2005 survey data

A low computerisation level in healthcare institutions may be explained by the lack of motivation among healthcare providers to use ICT at work. However, these indicators will increase in line with the development of EPR system.

Qualitative

- There is no document on eHealth development policy at national level, therefore eHealth is overshadowed by eGovernment priorities. This impedes eHealth development and opens space for local non-coordinated activities.
- The lack of legal certainty about the use of eHealth tools and applications. The issue of personal data use in digital health records is an open question. Reimbursement of eHealth services (consultations online) is not on agenda of healthcare policy.

- eHealth development is oriented more to administration purposes of healthcare institutions rather than to the needs of the population. Today all attention is given to the development of a national health information system. Absence of the system is the main excuse for healthcare providers on the limited supply of eServices. However, according to data of the Department of Statistics, only 25.4% of healthcare institutions have their websites, up until now there is no official portal where comprehensive and reliable information on health matters could be available for citizens.
- There is lack of motivation among healthcare providers to implement eHealth services. There is no competition among healthcare providers.
- Absence of good management and coordination of eHealth development at national level. The capacities of the MoH are meagre.
- There is no sustainable financial model for eHealth development. Absence of public-private partnership.
- Currently, the focus is placed mostly on absorption of funds allocated for eHealth but not on the quality of projects. The MoH, responsible for the implementation of eHealth, is not represented in the eHealth project assessment and selection procedures initiated by the ISDC.
- Evaluation of an impact of existing eHealth solutions is missing. Results of international projects are not summarised and disseminated.

III.2.2 The Factors

General factors

Positive	Negative
Macroeconomic environment: growing expenditure on healthcare forces to look for new ways to increase the systems' efficiency; growing dissatisfaction with the health system among the population; increasing demand to improve the performance of the sector (via "evidence-based" approach). A growing emphasis on preventive care.	Increasing disparities in access to healthcare among the regions. The country is faced with a shortage of healthcare professionals. ICT development requires huge investments not only in implementation but also in maintenance of IS. However, the control of healthcare costs relies heavily on the government through price fixing and service limits. Revenues of healthcare institutions are mostly used for increasing salaries of medical staff rather than for new technologies.
According to the Government programme, a reduction of personal income tax to 20% is planned. It might have an impact on revenues of the Obligatory Health insurance Fund (part of revenues consists of 30% of the personal income tax) and increase the demand for private insurance; concern for efficient budget spending is rising.	It is clear that the state is not able to reimburse all costs of all healthcare services. However, politicians lack political will to recognise officially that there is a need to introduce co-payments for healthcare services in spite of the fact that unofficial out-of-pocket payment is flourishing in healthcare institutions (mainly hospitals). There is a delay in introducing supplementary healthcare insurance.
Microeconomic factors: an increasing need for greater integration across healthcare service providers, a growing number of private providers and thus rising competition, particularly among primary healthcare providers, which stimulates the demand for efficient services. Consolidation of services and merges of hospitals, appearance of new medical technologies - processes which also stimulate application of ICT.	In general, the reform of the healthcare system is stagnating. Efforts are focused on centralised planning and regulation, therefore public healthcare institutions do lack incentives to look for cost containment, efficiency and higher quality of care.

Factors influencing usage of eHealth services (demand side)

Positive	Negative
Socio-cultural factors are favourable for eHealth development. Computer literacy is increasing. Society is getting used to eServices provided by other sectors. Increasing awareness of benefits of eServices induce the demand for eHealth development as well.	A lack of information on possible eHealth services. Senior people do not trust eHealth services. They prefer direct contact with a physician.
Demographic factors. The population is aging. More people experience difficulties in movement, therefore the demand for eHealth services is growing (especially telecare services).	Senior people do not have enough skills to use eHealth services.
Regional disparities are significant in the field of eHealth service provision and use. The need for eHealth services in rural areas is growing due to a decreasing number of health specialists.	Despite accessibility of the Internet in rural regions, people rarely book their appointments for health services via the Internet. They prefer to book an appointment with a physician by telephone.

Factors influencing supply of eHealth services (supply side)

Positive	Negative
The need for developing eHealth is recognized at political level.	There is no single official document at national level, outlining the guidelines for eHealth development. A detailed action plan is also missing.
Few pilot projects on an electronic booking system and EPR development have been implemented.	Absence of subordinate legislation on medical information standards and eHealth normative acts on protection of medical data, data exchange, etc. Many of eHealth projects were implemented on the initiative of health institutions and municipalities with a proper legal framework being absent. Assessment of eHealth projects is not performed. There is no information on user acceptance and health professionals' adoption. Fear of transparency among healthcare providers exists.
The pilot project on the development of the core of the national healthcare information system is under implementation.	The project is financed by a World Bank loan. Opportunities of EU funds to expand the project functionality as well as geography might not be embraced due to weak managerial capacity at the Ministry of Health.
Availability of EU funds for eHealth development.	However, too much attention is given to absorption of funds, rather than to the quality of projects.
Technological factors are favourable: an increasing number of private companies with needed know-how and experience to implement eHealth projects.	There is no vision on how to attract the private sector to take part in eHealth development.
To successfully promote eHealth development and overcome all challenges requires strong leadership from the government!	

III.2.3 Drivers and Barriers

<p><i>Drivers</i></p> <p>The major drivers for eHealth implementation are:</p> <ul style="list-style-type: none"> • a strong demand for improving the efficiency of the healthcare system; • to improve service quality and accessibility (reduce waiting lists); • EU policy and financial support. <p><i>Other facilitators:</i></p> <ul style="list-style-type: none"> • The national telecommunications network is well developed, and further investment in the public ICT infrastructure is underway; • Availability of a network of organisations which are involved in the development of eHealth; • Participation in international eHealth cooperation networks and research projects. • There are many specialists, creators, researchers and personnel interested in creation of an eHealth system; • No long-term heritage of ICT infrastructure which could block a smooth introduction of new technologies; • Good-practice examples from other countries. 	<p><i>Barriers</i></p> <p>The main barriers to implementation and uptake of eHealth service are:</p> <ul style="list-style-type: none"> • The lack of a legal framework for the use of ICT in the healthcare system. • The lack of planning and leadership in the development of eHealth. • Little attention is given to the assessment of patients' needs while planning eHealth projects. • The healthcare reform is stagnating. No motivation for healthcare providers to implement eHealth. • A low level of computer literacy and insufficient Internet access in healthcare institutions. • Experience obtained from national and international eHealth initiatives is ignored. <p><i>Other barriers:</i></p> <ul style="list-style-type: none"> • A sustainable financial model for eHealth development is absent. • The lack of transparency in investments, programmes and policies. • The lack of compatibility between separate concerned institutions and states (also at EU level). Information systems and databases created by local initiatives are incompatible among each other. <p><i>Risks:</i></p> <ul style="list-style-type: none"> • that expensive and quickly outdated systems will be preferred over flexible and easily adjustable platforms and services; • Continuity of implementation of eHealth projects launched might not be ensured.
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IV POLICY OPTIONS

Discussion on background of policy options

The study of Lithuanian eGovernment and eHealth service development lead to the conclusion that services in these domains in Lithuania are at different levels of maturity. eGovernment services have surpassed the stages of readiness and accessibility and have already reached the stage where policy focus shall be placed on usage and impact.⁴² eHealth development is still in the accessibility stage, where service supply and their interactivity level are the focus of the policy. The stage of readiness is when the issues of available infrastructure and awareness of the population are the core targets, and this stage has been already reached in both domains in Lithuania.

Of course, this doesn't mean that the tasks of public education and awareness raising as well as better infrastructure lost their importance. These targets remain valid however, they are being pursued naturally, by earlier-born and now further developing initiatives of private and public institutions, NGOs, education institutions, joint private and public sector initiatives, individuals themselves (see chapter II.2.2-3, II.3.2-3).

In eGovernment domain, development has already reached a certain level of service supply: most of public administration institutions provide some eServices and improve them gradually (see chapter II.6). The general eGovernment service availability rank among the EU members is very close to the average (see the table in chapter III) which allows us to expect eGovernment to deliver value added and its policy to focus on users' judgment as well as a general impact.

In eHealth domain, the supply of services is clearly insufficient, though needed and wanted by users. The majority of experts interviewed recognised that a slow development of eHealth services is mainly caused by limited understanding among politicians and healthcare providers of what kind of services have to be developed first and by limited motivation to do it. Here, the policy focus shall be on the means encouraging the development of service supply.

As described in the previous chapters, multiple policies have been created and applied trying to make eGovernment and eHealth emerge faster. So far, according to our analysis and the experts interviewed in the context of this research, the impact of these policies/measures was tangible but insufficient. There is a number of satisfactory but few successful cases of eGovernment services, however, they should be considered as exceptions, not as a rule. Successful cases appear to be implemented due to exceptional attitude and skills of the leaders of respective public institutions. Meanwhile, overall development of eGovernment and especially eHealth policy has not been able to lift eServices of public institutions into a higher level so far. This new level of quality is badly needed to increase the country's competitiveness and the trust of citizens in public authority.

As concluded in Chapter III, the main constraint for eGovernment service development is distorted motivation of both public administration institutions and public officials. Existing motivational mechanisms do not support individual attempts to serve their users and to save resources. Separate cases of breakthrough occur in exceptional cases due to personal dedication and enthusiasm of responsible people. The public administration system in general does not sustain the user and cost-saving orientation of its employees.

This particular conclusion is supported by our analysis and the prevailing opinion of the experts polled that the necessary legal basis is in place, financial resources are available, general public is equipped, ready and willing to use eServices, formal policies, following the EU objectives, and even a number of eServices are in place. The main thing to be lacking is motivation to deliver eServices that add tangible value for real users in Lithuania.

⁴² The stages are defined according to R. Heeks (Heeks Richard. Benchmarking eGovernment: Improving the National and International Measurement, Evaluation and Comparison of eGovernment. iGovernment Working Paper Series, paper No. 18, 2006)

In the eHealth domain, the legal framework needs to be improved in order to create a favourable environment for eServices development. The most important questions which have to be addressed at national and international level are those related to patient data privacy and confidentiality. A particular emphasis should be given to standardisation activities to ensure integration and interoperability of existing information systems and to support patient mobility and safe healthcare.

Further we will describe the policy measures that need to be taken in order to remove the obstacles and to take the opportunities of eGovernment and eHealth services at different levels, targeting primarily motivational structures of public administration institutions. The problem of motivation in public institutions can take a long time to be solved, however, it has to be addressed immediately, for it is a bottleneck for eGovernment and eHealth development (as well as for many other political, economic and social problems in the country). It will remain to be the major obstacle, even if a number of secondary obstacles are eliminated.

National level policy options

Public administration reform

The most essential measure should be an overall reform of public administration which by deliberate and explicit political action would change the prevailing model of the public administration system, which, according to numerous local and international analysts, is static, closed and hierarchic. It has no system of quality monitoring with respect to both public officials and their clients. The new system should be flexible, user-oriented, more flat in hierarchy for decision making, and interactive. This reform would have to change public administration motivation and functioning completely to reinforce achieving the aims and user-orientation. This is valid for the entire public administration system, including national and municipal level and all public healthcare institutions in particular. It should be noted that, in order to achieve client-orientation and operating efficiently in the healthcare sector, a number of extra changes (such as allocation of public funding, conditions for supplementary insurance and private suppliers to operate) are needed.

The mentioned public administration reform is multilayered. It is meant for overall efficiency of the public sector, with no particular focus on eGovernment or eHealth, however, essential for them. We believe that stimulating the public sector motivation for greater efficiency would in itself very strongly set eGovernment and eHealth as priority measures.

While measures to increase public administration efficiency should be implemented as a complex, separate actions may have an extra positive impact on eGovernment and eHealth development. Some of these measures are briefly described below.

The absence of relevant measurement of performance at present does not let one judge about the success of an institution, a public servant or a project. This situation must be changed if appropriate motivation of institutions and public servants is to be achieved.

The most important step is to secure that public officials are rewarded according to the quality of their work, and this quality should be measured with respect to the output-satisfaction of the users as well as the needs of the institution itself (that can be cost-saving, quality increasing, improving public opinion and the like). Clear criteria to measure these factors should be prepared, agreed between specialists of public administration and applied in all public administration institutions. Realistic terms for firing poorly working officials should be set up as well.

Institutions should be motivated by budgetary procedures to save the costs by leaving a share of saved funds within the institution. Otherwise, institutions would view this as one more imposed requirement and resist this additional effort. Well-operating institutions and officials should benefit from these changes – both financially and socially (morally).

This would create favourable conditions to use eServices as an opportunity in reducing the costs for public administration within public administration (the supply side). To pursue this goal, public service cost calculation should be done and monitored within time. It should cover all related costs, including projecting, implementing, training, maintaining, promoting, improving, etc. the services. Many shareholders of the eGovernment and eHealth process stress the importance of this – now many

eService implementation stop at the level of hardware and software, without proper effort given for training, maintaining and other actions, indispensable for achieving the goals. Services – online and manual - should be priced according to their costs. Information on price differences should be well-circulated and used as a promotion tool to use eServices instead of the physical ones.

The results of public institutions' operation – both consumer satisfaction and cost-saving rates – should be evaluated and announced in public annually. Leading institutions should be honoured at high level. This measure is to make the institutions compete among themselves not only for political influence, but by the quality of their operation and by being transparent and accountable to society. We propose to initiate this and organize an institution, responsible for eGovernment policy in Lithuania – the ISDC.

Proper motivation of public administration institutions/officials would eliminate the following gaps:

- to know what eServices are to be implemented;
- to have a complete-life-cycle of the service, including training, improving and promoting;
- to apply correct pricing or other benefits (e.g. preferable treatment) for online users;
- to use the best business models and technologies to save the costs and to serve the user;
- to invest into training, to increase qualification.

In the case when the overall public administration reform is not carried out, elements of measuring user-satisfaction and service costs should be introduced in a number of more advanced institutions, providing services to business and citizens (such as the Tax Inspectorate, Customs office). These indicators could be used then to evaluate the performance of these institutions and help to expand the monitoring system to other institutions later. This would be a much weaker driver for changing motivation; however, bearing in mind the reluctance of bureaucracies to reform themselves and the amount of political will as well as know-how needed, it could turn out to be a halfway but practical solution.

As noted by the State Control in 2006 report (see chapter II.9.2), the ISDC is responsible only for ICT in governmental organizations, but not in municipalities, courts and the Prosecutor office. This is a result of the structure of state institutions, which realizes the power division (legislating, executing and judicial) principle as well as government decentralisation principle, and is provided by the Lithuanian Constitution. Courts cannot be regulated by governmental institutions, only by law and the Parliament (via the Board of Courts). The Prosecutor office obeys only the law. Municipalities are free in executing their independent functions and are limited while executing the so-called delegated functions. This means that the national eGovernment policy in general is not applied to these institutions, however, general requirements and principles that are valid to all institutions can be provided by law. However, there have been no public debates on this issue so far.

In the case of municipalities, such debates take place and the question turns into a discussion of centralisation level (see “local level” below).

Other measures

Proper motivation of public institutions doesn't solve entirely the problem of a narrow institutional approach. However, in many cases it does – when a clear benefit of cooperation is perceived, institutional and political ambitions can be outweighed by positive cooperation outcomes.

Some inter-institutional or umbrella-type projects need influential and competent coordinating body anyway. The ISDC is or could become a satisfactory competent body, but its influence is lower in many cases than that of a ministry. However, when the ISDC team is settled and certain tradition is already in place, it would be very risky to redistribute responsibility for the information society policy again. Bearing in mind the core target for eGovernment development – public administration reform - the most proper set up is where the Ministry of the Interior is a responsible ministry for both public administration and eGovernment policy. Besides, the existing setup, though scattered and complicated,

resembles the essential feature of the information society – its horizontal, not vertical, nature. The absence of separate ministry makes other ministries to cooperate more, while the ISDC is a sufficient body for technical and specialized issues.

The problems arise less because of structural, but more of policy priority reasons. As long as the government is not willing to carry out public administration reform and health system reform, eGovernment and eHealth issues do not come to the agenda of the Ministry of the Interior as a policy priority. Then they are developed as much as the scope of ISDC activity allows and as much as separate institutions take their share.

In order to allow institutions to prepare and implement high quality services, annual character of budgetary funding should be removed. Investments to ICT projects should be financed on project basis that could last, if needed, more than one year.

At the level of budget allocation, concrete project proposals of the institutions and municipalities should be considered. Public funding should be provided to eGovernment and eHealth projects according to their quality, having a major prerequisite - proven demand for the services and saving for public administration – fulfilled. With respect to cost saving, all phases and kinds of expenses shall be included (such as implementation, training, and promotion) also bearing in mind the possibilities of the future improvement. Therefore, different cooperation models with the private sector, including outsourcing, lease of services, PPP and others should be considered as a means to save the costs and to meet users' needs in the best way.

Healthcare reform

In the private sector, ICT are being used to change the way the business is organized, operate and manage relations with customers. In the health sector, ICT should be also used to change the way services are delivered and healthcare providers interact with patients. Today in Lithuania most proposals for healthcare reform recognise such problems as increasing costs, shortage of funds, and low wages of physicians. Politicians don't recognize their underlying causes, thus their solutions mostly rely on an increase in spending and controls by bureaucracies. The new reform should be more patient-oriented. Attention should be given to ensure that the system works to improve health and performance, and provides patient and population satisfaction.

The goal to increase the effectiveness of the healthcare system should be among priorities for policy makers. However, healthcare providers have weak incentives to increase output, improve efficiency or maintain quality and responsiveness to patients' needs. One of the drivers of the reform could be better measurement of health system performance – including health outcomes, the quality of care, waiting lists, patient satisfaction and the system's responsiveness, and eHealth services is a very proper tool here.

Measures should be taken to introduce the accountability for quality and to publish and disseminate information on the performance of providers. However, all of the available information on price, quality, and performance will be useless, unless individuals will be able to act directly by controlling the flow of money in the healthcare system. At the same time there should be a system of incentives designed to reward those providers who meet various criteria of quality and effectiveness.

Problems of accessibility and quality in the healthcare are creating an expanding range of ICT opportunities for Lithuania. However, there is a number of studies which show that investing in ICT does not necessarily lead to cost reductions and higher productivity if it is not associated with organizational changes. It means that there is a need for a shift towards more independent providers within greater management independence and responsibility within the public sector.

Greater attention should be also given to searching for new methods on payments for healthcare services. In this context, issues related to financing of capital costs should be analysed. Currently, these costs are considered outside operating budgets while setting prices for healthcare services. Capital costs of public healthcare institutions are subsidised by the government while private healthcare institutions finance their costs from earned income. Such a situation distorts competition among public and private providers. Effective ICT investments require spending additional resources in training their personnel and testing new ways of service provision. These costs also constitute

investments in tangible and intangible assets. Therefore, it is necessary to look for new mechanisms that would allow public healthcare institutions to upgrade new technologies through better access to capital.

Besides, the means for enhancing motivation of healthcare institutions, a comprehensive national eHealth strategy is needed if Lithuania wants to achieve the overall goals of the healthcare reform.

The Ministry of Health is currently leading the implementation of eHealth. However, as many interviewed experts pointed out, it badly lacks competence and skills in management and coordination of eHealth activities.

It is quite understandable that skills and competencies required to discharge a policy-making role in the Ministry of Health are of a different kind compared to those needed for an execution of eHealth projects. On the other hand, in order to ensure a clear link between eHealth development and the process of the healthcare reform, this institution would be the most proper in the role of a coordinator. A solution might be to establish a National Centre of Competence, an organization championing the transformation of healthcare through the mobilization of ICT. Similar centres already exist in many EU countries and their activity shows benefits. Functions that are often ascribed to such organizing body include: setting standards for health information exchange which is aligned with national standards as they emerge; gaining consensus on privacy and confidentiality policies; coordinating state agency interests; identifying best practices; raising awareness of regional and local initiatives; fundraising and administering state-wide funding; serving as a liaison to local initiatives; working with public and private sector players; and developing plans for consumer and physician education.

Local level policy options

As the Chart 7 (Chapter I.1) shows, the regional level in Lithuania is the formal one. Territorial governance is represented by central government institutions, executing administration in a particular territory. Therefore, there is no independent regional policy level in Lithuania.

At local level, apart from motivational obstacles identified above, there is a much greater shortage of competence and funding than at national level. The first reason is the size of municipalities (economies of scale have different multipliers here) and their difficulty to attract and retain talents.

To address these issues, there are two alternatives for municipal and local level eGovernment services to develop further.

The first one is in accordance with the present legal framework – municipalities are free to decide what kind of eServices, if any, and in what way to implement. It is the Mayor's and the Council's decision what priority, funds and human resources to allocate for eGovernment development. If this scenario prevails, we can expect a very different level of local eServices across the country in short-term and maybe middle-term perspective, with more promising perspectives for bigger municipalities. We can expect that some municipalities will not be able to implement eGovernment at all. We can also expect some unsatisfactory solutions as the process would be decentralized and open. However, in the long run these differences will smoothen out, as municipalities will have it easier to implement their services by copying the implemented models according to their needs. The ISDC can continue acting as a facilitator in sharing the best practices and a methodological advisor, as it has done so far. In open and decentralized scenario private, NGO or collective municipal initiatives would be much more active than in the centralized one, and would help to close this gap.

The second way is to turn towards stronger centralisation. This would mean the implementation of some standard package of eServices in a big number of municipalities. Wide supply of some services could be expected in a rather short time. However, there are risks that the services will not entirely meet the needs of users in individual locations and that the variety of solutions will be very negligible. This alternative makes the success of local eGovernment service development much dependant on the standard package and decreases the possibility for excellent solutions to emerge.

The ISDC, the leader of the Information Society Committee in the Parliament and Association of municipalities presently (2006) favour the latter way of further development. The experts interviewed in this research are rather clearly in favour of the decentralised model, emphasizing the urge for

eServices to reflect the real needs of people and the potential to accumulate creative resources of local communities.

EU level policy options

The supply side has been emphasised significantly at EU level so far. The lists of EU benchmarked eGovernment services have played their role to kick off the process of eGovernment and eHealth development in Lithuania, while EU structural funds sustain the further process in financial terms. Now, when certain experiences of eGovernment service implementation in all member countries exist, the emphasis should be shifted to the user side. Therefore, the essence and quality of the services should be at focus.

The shift of the policy focus is also recommended at EU level. Capgemini suggests renewing EU eGovernment benchmarking model by introducing user-value reflecting indicator (Capgemini, 2006). The indicator is suggested to consist of several pre-defined sub-indicators. Bearing in mind that this evaluation would be carried out by the expert, it would mean the expert's opinion about the users opinion and thus reflect the latter indirectly. Therefore, while supporting Capgemini idea about the need to reflect the user value, we suggest allowing users to evaluate eServices themselves. In the scope of eGovernment and eHealth, only a set of indicators, to be exposed for the user evaluation, should be agreed.

EU institutions (the Commission first of all) could be very helpful in assisting national administrations to find out measurable factors to assess the quality of public administration services as well as these services online. In this way the indicators would be comparable among the countries and could help to increase the value of public services and to curb down the bureaucracy across Europe. The process of eService direct evaluation by the users could serve also as a promotion tool for these services, addressing also those users, who prefer to contact public administration physically instead of going online.

EU level exchange of "good practices" is option that has to become more efficient. Particularly it may be relevant when at EU level there is a push for a new concept (e.g. "user value"), it should be exposed in action through good-practice exchange networks, so that practical knowledge becomes available to institutions.

Another rather clear and simple, however, formally neglected, issue is the scope of the concept "on-line" (or "e-"). Presently only services, provided via the Internet are regarded as eServices, while telephone services, though existing and used, are not given the same importance. Bearing in mind the constant development of electronic devices and technological convergence, we suppose that all electronic means in terms of eServices should be included in eService concept equally.

eHealth

Although the majority of healthcare reforms would undoubtedly claim to seek and achieve qualitative improvements, their initial goal has been to reduce costs. Now it is necessary to build a foundation for ongoing, cumulative increases in performance with respect to the quality of care, its accessibility, and its cost. The role of the EU would be very important while identifying tools, techniques, and methods of proven effectiveness in healthcare; and developing models that will permit the examination and optimization of system performance through which healthcare providers convert inputs into outputs.

Monitoring of the process and dissemination of good practices could be one more fruitful direction for EU policies. Exchange of good and bad practices is continuing to be important for the start, operation and improvement of all-level eGovernment and eHealth service. The shift of the focus more on the user rather than the supplier side could give this exercise a new dimension while encouraging users to organize themselves and to take the opportunities provided by eServices.

V R&D CHALLENGES SPECIFIC TO EGOVERNMENT AND EHEALTH

Numerous topics are being discussed with different intensity in the concerned public and political circles. They might define, in some aspects, the long-term developments of eGovernment and eHealth fields, however, only some of them can be regarded as R&D issues. The most relevant eGovernment and eHealth related issues of the public debate are presented below:

- Open source vs. commercial software usage in public administration. The position of open source is supported by the ISDC (following the EU trend). For the sake of argument, it is often mixed with open standards usage in public administration. Still, due to the lack of defining arguments, this discussion does not seem to be resolved anytime soon.
- Centralization vs. decentralization in eGovernment developments. Just before the year 2000, quite intensive discussions took place, supporting a centralised development of infrastructure, services and competencies. Though the path of decentralisation was chosen now, this discussion re-emerges in different shapes. Currently, it concentrates on the integration of data and document flows in public administration, centralization attached to “one-stop-service” and municipalities’ role in eGovernment and eHealth policy. It is discussed whether cross-institutional services must be owned centrally or by issuing authorities. Worrying tendencies can be discerned that these questions do not always end up in open discussions and solutions but turn out to be operational decisions, which are based on a short-term pressure rather than on strategic thinking.
- Effectiveness of eServices implementation is hardly treated as the matter of debate discussion, but as the matter of belief. It is widely and strongly believed that eServices exert positive influence notwithstanding the way they are implemented and the costs of implementation. This belief arises mainly in all kinds of progress reports; however, it is usually undersupplied with arguments.
- Private sector involvement. This is a recent topic which is just gaining awareness. The lack of knowledge/resources/speed in public administration is recognized. Still, private sector involvement is viewed with considerable cautiousness. Despite the fact that the private sector could bring its natural motivation, skills and know-how in pursuing both goals – user satisfaction and cost saving, in some cases business could also provide additional investment. Confidence in the private sector for mutual undertakings is clearly a lack in the public domain.
- Consequences of the implementation of some eGovernment services. While debating the necessity to have public funding for the implementation of one or another service (e.g. eSignature), a discussion also takes place on what impact this move will have on the markets. The hypothesis discussed is that if publicly funded eSignature project is established, the “Certification Authority” market will be destroyed in Lithuania. No space will be left for large and profitable private CA as the market is too small.
- The issue of what eServices ought to be implemented is not discussed in public. The official position is to resemble the EU recommended eService lists as best as possible.

eGovernment and eHealth, being practical tools, face organisational challenges in the first place. As it was explored above, management of eGovernment and eHealth projects is still an evident weak point for better development. Good management is not limited by proper education and skills of public officials (though this also remains a serious challenge). The main bottleneck and the main challenge is to create motivation for public institutions and officials to provide users with the services in the true meaning of this word and not just to fulfil formal requirements for providing eGovernment and eHealth. The ways that this motivation could be created is presented above, in Chapter IV.

In the process of creating motivation for public officials to serve users and to save costs, the following specific R&D challenges emerge:

- to develop and apply a set of indicators that would measure and allow monitoring of user satisfaction with public administration services;
- to develop and apply a set of indicators that would measure and allow monitoring the usage and impact of each eGovernment service on users;
- to set up and introduce cost calculation procedures of eService implementation and operation in public administration institutions.

In the eHealth domain, several additional issues are challenges in themselves:

- interoperability and integration of existing information systems (e.g. optimisation of data collection and integration of the data from electronic health records and health monitoring systems);
- a right balance between personal data protection and availability of useful medical information online on an individual.

The case of eHealth is especially difficult to project, as the structure of the present Lithuanian healthcare system can hardly sustain sophisticated ICT tools. Some healthcare institutions do, but this is mainly due to exceptional efforts of their leaders. Therefore, before introducing modern, efficiency increasing technologies into the healthcare sector at national level, management of the institutions has to be strengthened.

The task to treat users as real clients of eGovernment and eHealth implies the need for a comprehensive eGovernment and eHealth services monitoring system and for pro-active and close-to-site coordination activities of the Information Society Development Committee.

Other, not crucial, but still serious challenges may exist. For quite a long time, availability of technical infrastructure used to be a challenge. Today, however, as clearly stated by numerous experts, technical challenges are out of the scope of eService development policy. Technological change is constant and inevitable, even more – it is accelerating, therefore the most proper approach in any policy is to take it as a fact. In order to meet technological change, policy must be flexible and technologically neutral. Therefore, it is not reasonable, in the long-term, to attach exceptional importance to any particular technology, either word processing or eSignature implementation, while formulating governmental ICT policies. Political bodies should not pick up a challenge of technological standardisation. Standards emerge in the market as it is a natural interest of business to have them.

Security challenges are met first by market agents (e.g. banks), therefore technical solutions can be taken to public administration from them. What remains, is security management challenges that are a part of general problems in public administration, caused by motivation, other than to serve the user best at the lowest cost for the organization. This issue should be addressed by creating incentives for public officials to pursue namely these goals, instead of the goals of political correctness, influence or personal effort saving.

The most serious challenges, to our view, are for business models to incorporate the private sector into the process. The private sector could bring its natural motivation, skills and know-how in pursuing both goals – user satisfaction and cost saving. In some cases business also could provide additional investments. The main challenge here is to define models for cooperation in a way that proper responsibilities are clearly allocated among the relevant parties. The model and its legal implementation have to be sufficient to prevent one party from benefiting at the expense of the other, so that both public and private interests are fulfilled. More integrated participation of the private sector could become a challenge for the existing public procurement schemes, but they most likely will require more sophistication anyway.

VI CONCLUSIONS

The study of the development of Lithuanian eGovernment and eHealth services leads to the conclusion that services in these two domains are at different levels of maturity. eGovernment services have surpassed the first stage of being made ready and accessible and have already moved on to a stage where a policy focus should be placed on the usage and impact. eHealth development, however, is still in the first stage of service accessibility where service supply and the level of service interactivity are the prime targets of the policy.

eGovernment in Lithuania has already reached a stage where the essential infrastructure is in place, and the public are aware of its existence. Though further public education and awareness raising are still necessary, this is being carried out, and further developed, through initiatives by private and public institutions, NGOs, education institutions, joint private and public sector initiatives, and individuals themselves.

eGovernment development has already reached a certain level of service supply: most of the public administration institutions provide some eServices and are improving them gradually. Lithuania's ranking among EU member states in general eGovernment service availability is very close to the average (68% and 75% respectively). Business usage of eGovernment services is also at the average EU level, although the usage by individuals and Internet access at home remain far lower than in EU-25 (13% and 24% respectively for eGovernment usage by individuals and 35% and 51% respectively for Internet access at home; however, these figures are constantly rising) as does the population's ability to use eGovernment services in terms of skills.

The environment for eGovernment development can be described as rather favourable. The goal to provide efficient eGovernment services is recognized and is among the policy priorities. The legal background for the provision of eGovernment services is in place: an eGovernment conceptual framework and an implementation plan were prepared and updated and are currently being carried out. Legislation on eSignature, eSecurity, personal data protection, state registers and other related issues are in effect. The Strategy for Public Administration Development has been adopted and is being implemented. eGovernment and broader issues of the information society have been incorporated into the general political agenda (government programme, long-term state development strategy, Lisbon strategy implementation plan, etc.). The institutional background is also in place: responsibility for information society policy is distributed horizontally among the ministries; the Ministry of Internal Affairs being responsible for eGovernment. Public administration lies within the competence of the same ministry. A specialised institution – the Information Society Development Committee (ISDC) - is coordinating and facilitating all issues to do with the information society. Communication infrastructure is well-developed on both the supply and user side and is being improved constantly, mainly by means of EU structural funds.

The main shortfall in eGovernment development currently is that it does not provide for full achievement of the eService targets, i.e. efficiency and transparency. eGovernment does not change the prevailing outdated public administration framework and tradition, but rather adapts to it. Though a number of services have been implemented formally, they do not simplify public administration procedures by themselves. On the other hand, the supply of eGovernment services is not an outcome of user demand or a cost-efficiency decision within public administration, but merely the consequence of EU recommendations. The eGovernment implementation process has been burdened by lack of motivation and skills in project management among public administration officials, poor and fragmented monitoring of implementation and, above all, slow public administration reform.

In eHealth, the supply of services is clearly insufficient, though needed and wanted by users. Many eHealth projects are currently being implemented in Lithuania at national and local levels, core eServices have started to emerge, separate modern international eHealth pilot networks are being created and cooperation projects are underway. Regrettably, as mentioned above, ICT activities in healthcare are sporadic and poorly coordinated and little information about the results achieved is

available. Awareness of eHealth benefits is increasing among healthcare providers. Today, the main focus is on the development of a national health information system which will have Electronic Patient Records, ePrescription, eReferrals, and eBooking functions. The absence of this system was the main excuse made by healthcare providers for the scarce supply of eServices.

The majority of experts interviewed recognised that the slow development of eHealth services results mainly from politicians and healthcare providers' limited understanding of what kind of services should be developed and their limited motivation to do it. There is no document on eHealth development policy at a national level so far, which impedes eHealth development and opens space for non-coordinated activities. Therefore, as the first step, an eHealth strategy should be approved at national level and there could be broader discussion on these issues in society. Second, the implementation process should be managed and supported at national level by selecting necessary standards and managing the national infrastructure and certain general databases/registers. The implementation of these tasks will require good institutional capacities. It has been generally admitted that, at the moment, the Ministry of Health's ability to coordinate ongoing eHealth projects is insufficient. Therefore, the establishment of a centralized coordinating institution, a National Centre of Competence, which would ensure both the implementation of the strategy and the administration of a newly-created national health information system at the primary stage of implementation, should be considered.

However, the ultimate facilitator for eHealth-friendly motivation among healthcare providers can only be structural healthcare reform tailored for the needs of patients and competition among providers and directed to attain specific results, i.e. incentives should emerge within the system to suit the patient, to expand access to services and improve their quality.

The aspiration for efficient public administration and healthcare services and EU initiatives in this field, coupled with financial support from EU structural funds, are the two major forces driving forward the development of both **eGovernment and eHealth** in Lithuania.

An overall reform of public administration is the most essential measure for further successful development of eServices. This would change the prevailing model of the public administration system which, according to numerous local and international analysts, is static, closed and hierarchic. The new system should be flexible, user-oriented, flatter in the decision-making hierarchy and interactive. This reform would have to change the motivation and function of public administration completely to reinforce the achievement of the aims and user-orientation. Better user-orientation would indicate which eServices should be implemented, and allow a complete life cycle approach to the service, including training, improving, and promoting. It would also allow correct pricing or favourable treatment for online users; and the use of the best business models and technologies to save costs and serve the user. Furthermore, it would encourage investment in training and increase qualifications.

This is valid for the entire public administration system, including national and municipal levels and all public healthcare institutions. It should be noted that, in order to achieve client-orientation and efficient operation of the healthcare sector, a number of structural changes should be carried out in the sector itself (such as legalizing co-payments, allocating public funding on the grounds of competition, creating conditions for supplementary insurance and private suppliers to operate, etc.). Otherwise, eSolutions will not be able to deliver the required results. In healthcare, eSolutions are potential instruments for improving access to services and their quality and safety, ensuring healthcare based on scientific evidence, seeking continuity of services and utilizing more effectively, rationally and with greater transparency the restricted resources allocated for healthcare.

Currently, public administration reform is multilayered. It has been designed to increase the overall efficiency of the public sector, with no particular focus on eGovernment or eHealth. We believe that stimulating the public sector's motivation for greater efficiency would in itself very strongly set eGovernment and eHealth as priority measures. The results, in terms of consumer satisfaction and cost-saving rates, of the operation of public institutions should be evaluated and announced annually. Similar monitoring of eHealth service provision should take place. Institutions which achieve high scores should be rewarded. This measure should make the institutions compete among themselves not

only for political influence, but also in the quality of their performance, transparency, and accountability to society.

In order to identify cases where overall reforms of public administration and healthcare systems are not carried out successfully enough, indicators of user-satisfaction and service costs should be monitored and introduced in a number of more advanced institutions, providing services to business and citizens (such as the Tax Inspectorate, Customs Office and certain healthcare institutions). These indicators could then be used to evaluate the performance of these institutions and help to expand the monitoring system to other institutions later. This would be a much weaker driver for changing motivation, bearing in mind the reluctance of bureaucracies and closed systems to reform themselves and also the amount of political will and know-how needed. However, it could turn out to be a partial but practical solution.

So far, it is the supply side of eServices that has received significant emphasis at EU level. The lists of EU-benchmarked eGovernment services have kick-started the process of eGovernment and eHealth development in Lithuania, while EU structural funds are sustaining the continuation of the process. Now, when some experience of eGovernment service implementation exists in all member states, the emphasis should clearly move to the user side. We suggest that users should be allowed to evaluate eServices themselves. Within the scope of eGovernment and eHealth, a set of indicators, should be agreed upon.

EU institutions (the Commission particularly) could prove very helpful in assisting national administrations to find measurable factors to assess the quality of public administration services and these services online. In this way, the indicators would be comparable among the countries and could help to increase the value of public services and to curb bureaucracy across Europe. The process of eService direct evaluation by users could also serve as a promotion tool for these services.

Another clear issue, though it has been neglected up till now, is the scope of the concept 'on-line' (or 'e-'). At present, only services provided via the Internet are regarded as eServices, while telephone services, though they exist and are being used, are not given the same importance and are not included in benchmarking. Taking into account the constant development of electronic devices and technological convergence, we believe that all electronic means in terms of eServices should be included in an eService concept on an equal basis.

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Abstract

In 2005, IPTS launched a project which aimed to assess the developments in eGovernment, eHealth and eLearning in the 10 New Member States at national, and at cross-country level. At that time, the 10 New Member States were Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, and Slovakia. A report for each country was produced, describing its government and health systems and the role played by eGovernment and eHealth within these systems. Each report then analyzes, on the basis of desk research and expert interviews, the major achievements, shortcomings, drivers and barriers in the development of eGovernment and eHealth in one of the countries in question. This analysis provides the basis for the identification and discussion of national policy options to address the major challenges and to suggest R&D issues relevant to the needs of each country – in this case, Lithuania.

In addition to national monographs, the project has delivered a synthesis report, which offers an integrated view of the developments of each application domain in the New Member States. Furthermore, a prospective report looking across and beyond the development of the eGovernment, eHealth and eLearning areas has been developed to summarize policy challenges and options for the development of eServices and the Information Society towards the goals of Lisbon and i2010.

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