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The Development of eServices in an Enlarged EU:
eGovernment and eHealth in the Czech Republic

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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 - i2010[2] - 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-government[3] and e-health.[4] Public services have also been included as application fields for ICT in the 7th Framework Programme for Research and Development[5] and in the ICT policy support programme of the Competitiveness and Innovation Programme (CIP).[6]

Research context

IPTS[7] has been researching IS developments in acceding countries[8] 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 States[10] 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 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

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[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

such as international and national survey data, literature, policy documents, and expert interviews were used to capture the most recent situation of each country.

In addition to national monographs describing eGoverment, 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 the 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 Czech Republic

This report was produced by the consortium member from the Czech Republic, EEIP a.s. (Ekonomické expertizy, investični poradenstvi). It presents the results of its research on eGovernment and eHealth in Czech Republic.

First, it describes government and health system in Czech Republic 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.

All reports can be found on the IPTS website at: http://ipts.jrc.ec.europa.eu/publications/index.cfm

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ADSL	Asymmetric Digital Subscriber Line
APVTS	Association of Public Telecommunications Network Operators
B2B	Business to Business
CDP	Christian Democratic Party
CEE	Central and Eastern Europe
CKA	Czech Consolidation Agency
CNB	Czech National Bank
CMU	Centre for International Reimbursement (Centrum mezistátních úhrad)
CR	Czech Republic
CSO	Czech Statistical Office
CSSA	Czech Social Security Administration
CZK	Czech Crown (currency)
DICOM	Digital Imaging and Communications in Medicine
DNS	Domain Name System
DPS	Data Presentation System
DRG	Diagnosis-related Group
GDP	Gross Domestic Product
ECB	European Central Bank
EFMI	European Federation for Medical Informatics
EHIC	European Health Insurance Card
EHR	Electronic Health Record
EICTA	European Information & Communications Technology Industry Association
EMS	Emergency Services
ePUSA	Electronic Portal of Regional Self-Governments
ERDF	European Regional Development Fund
ESF	European Social Fund
eTEN	Trans-European Telecommunications Networks
EU	European Union
EU-8	The new member states joining the European Union on 1 May, 2004, except for Cyprus and Malta
EU-10	The new member states joining the European Union on 1 May, 2004.
EU-15	The member states of the European Union before 1 May, 2004.
EU-25	The member states of the European Union from 1 May 2004 till 31 December 2006
EUR	Euro (currency)
EURES	European Employment Services
ePUSA	Electronic Portal of Regional Governments
FN	Teaching Hospital (Fakultní nemocnice)
FTP	File Transfer Protocol
GATT	General Agreement on Trade and Tariffs
GDP	Gross Domestic Product
GHIC	General Health Insurance Company (Všeobecná zdravotní pojišťovna)
GovNet	Government Network
GPRS	General Packet Radio Service
HL7	Health Level Seven, Inc., an all-volunteer, not-for-profit organization involved in development of international healthcare standards
HSCSD	High Speed Circuit Switched Data
HZP	Hutnická zdravotní pojišťovna - a regional health insurer based in Ostrava (North Moravian-Silesian Region)
ISDN	Integrated Services Digital Network
ICT	Information and Communication Technology
IDA	Interchange of Data between Administrations

IDABC	Interoperable Delivery of European eGovernment Services to Public Administrations, Businesses and Citizens
IEA	International Energy Agency
IGA	Internal Grant Agency
IHIS	Integrated Health Interview Series
ID Card	Identification Card
IDS	Intrusion Detection System
IKEM	Institute of Clinical and Experimental Medicine (Institut klinické a experimentální medicíny)
IMIA	International Medical Informatics Association
INTRASTAT	A system of data collection on trade of goods between the member countries of the European Union
INVEX	International Fair of Information and Communication Technologies
IP	Internet Protocol
IPA	Independent Practice Association
IPVZ	Institute for Postgraduate Medical Education
ISKŘ	Information System for Emergency Management (Informační systém krizového řízení)
ISP	Internet Service Provider
ISVS	Information Systems of Public Administration (Informační systémy veřejné správy)
IT	Information Technology
IZIP	Internet Access to Patient's Medical Record (Internetový přístup ke zdravotním informacím pacienta)
JSŘKP	Unified Management Structure of Key Processes of Public Administration (Jednotný systém řízení klíčových procesů)
JROP	Joint Regional Operational Programme
KEVIS	Regional Registration Systems (Krajský evidenční informační systém)
KI ISVS	Intranet of Public Administration (Intranet veřejné správy)
LAN	Local Area Network
MIVS	Metainformation Search System for Public Information Services (Metainformační vyhledávací systém)
MoH	Ministry of Health
MLSA	Ministry of Labour and Social Affaires
MPLS	Multiprotocol Label Switching
MUM	Managing Uncertainty in Medicine
NCO NZO	National Nursing Care Center (Národní centrum ošetřovatelských a nelékařských zdravotnických oborů)
NGO	Non-Governmental Organisation
NPPG	National Program for Computer Literacy (Národní program počítačové gramotnosti)
NZIS	National Health Information System (Národní zdravotnický informační systém)
OECD	Organisation for Economic Cooperation and Development
ODS	Civic Democratic Party (Občanská demokratická strana)
Office	Office of the Government of the Czech Republic
OSL	Open Source License
OSVC	Self-employed person (Osoba samostatně výdělečně činná)
PC	Personal Computer
PIN	Personal Identification Number

PHARE	Pologne-Hongrie Aid a la Reconstruction Économique, the European Union's financial and technical cooperation programme with the countries of Central and Eastern Europe before the accession
PKI	Public-Key Infrastructure
p.p.	Percentage Point
PPA	Portal of the Public Administration
PPP	Public-Private Partnership
PPS	Purchasing Power Standards
RAMIS	Regional And Municipal Information System
RIA	Regulatory Impact Assessment
R&D	Research and Development
SAO	Supreme Audit Office
SDZA	Administration of Data Sources and Applications (Správa datových zdrojů a aplikací)
SMS	Short Message Service
SPIS	Association for Information Society (Sdružení pro infomační společnost)
SSS	State social support
SZP ČR	The Union of Health Insurance Funds of the Czech Republic
TELCO	Telecommunication
TESTA	Trans-European Service for Telematics between Administrations
ÚOHS	Czech Antimonopoly Office (Úřáda pro ochranu hospodářské soutěže)
UIR-ADR	Area identification address register (Územně identifikační registr adres)
USD	American Dollar (currency)
UZIS	Institute for Health Information and Statistics (Ústav pro zdravotnické informace a statistiku)
VAT	Value Added Tax
VIES	VAT Information Exchange System
VPN	Virtual Private Networks
WAN	Wide-Area Network
WHO	World Health Organisation
Wi-Fi	A brand originally licensed by the Wi-Fi Alliance to describe the underlying technology of wireless local area networks (WLAN) based on the IEEE 802.11 specifications.
WSA	World Summit Award
WTO	World Trade Organisation

INTRODUCTION

Figure 1: Map of the Czech Republic

Source: Ministry of Finance of the Czech Republic

Table 1: General data on the Czech Republic

	2005	2006
General data		
Population (2005, million)	10.2	10.2
Area (km^2)	78 864	78 864
Currency unit (Czech Koruna)	CZK/EUR=29.78	CZK/EUR=28.34
Per capita GDP (EUR)	9 616	11 012
Economic situation		
GDP growth	6.00%	6.10%
Unemployment	7.90%	7.10%
Inflation	1.90%	2.50%
Government deficit (% GDP)	2.60%	2.90%
Government debt (% GDP)	30.50%	30.40%
GDP distribution		
Agriculture	3.00%	
Industry and Construction	37.80%	
Services	59.20%	
Households connected to internet	19% (I.Q)	27% (II.Q)
Basic computer literacy	27%	
Membership in international organizations	EU, NATO, OECD, WTO, IEA, …	

Source: Ministry of Finance of the Czech Republic, Czech Statistical Office

Economic situation

GDP and its growth – regional and international comparisons

The gradual acceleration of the year-on-year growth of potential output is a beneficial result of the acceleration of the growth trend of the total factor of productivity. It results from the removal of the remaining barriers to the movement of goods after EU entry and the inflow of foreign direct investments, which lead to improved functioning in the business sphere, especially with regards to foreign controlled businesses, financial system stability and the lowering of rates in corporate taxation. A permanent advancement of total factor productivity growth should become the most important parameter of convergence of the Czech economy's performance to the euro area level.

The Czech economy follows a growth path slightly above its potential output, currently estimated at above 4% growth. From the prospective view, the structure of growth is very favourable, driven mainly by net exports. The year-on-year increase of the real GDP reached 6.1% in 2006.

Figure 2 : GDP growth (%)
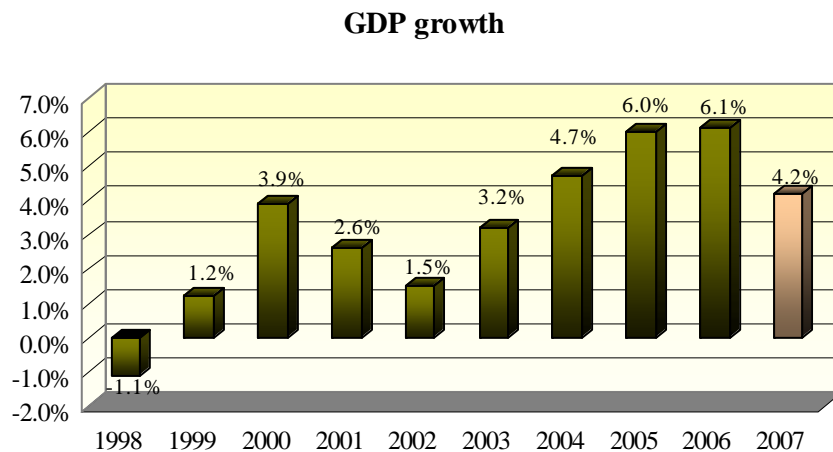
Source: Ministry of Finance of the Czech Republic

The regional distribution of the GDP is uneven in the Czech Republic. The GDP per capita (in PPP) of the capital city Prague reaches almost double the value of the national average. In comparison with the EU25 average, the GDP of the Czech Republic is 68.9%, which is way below the Prague GDP of 139.7% (data for 2004). Besides Prague, only five regions reached the 60% threshold of the EU25 GDP average, while the others remain between 53 to 60% of the given EU average.

Figure 3: Regional differences in GDP per capita as % of EU25 level (as % of the average GDP per capita of the Czech Republic) expressed in PPP as of 2004:
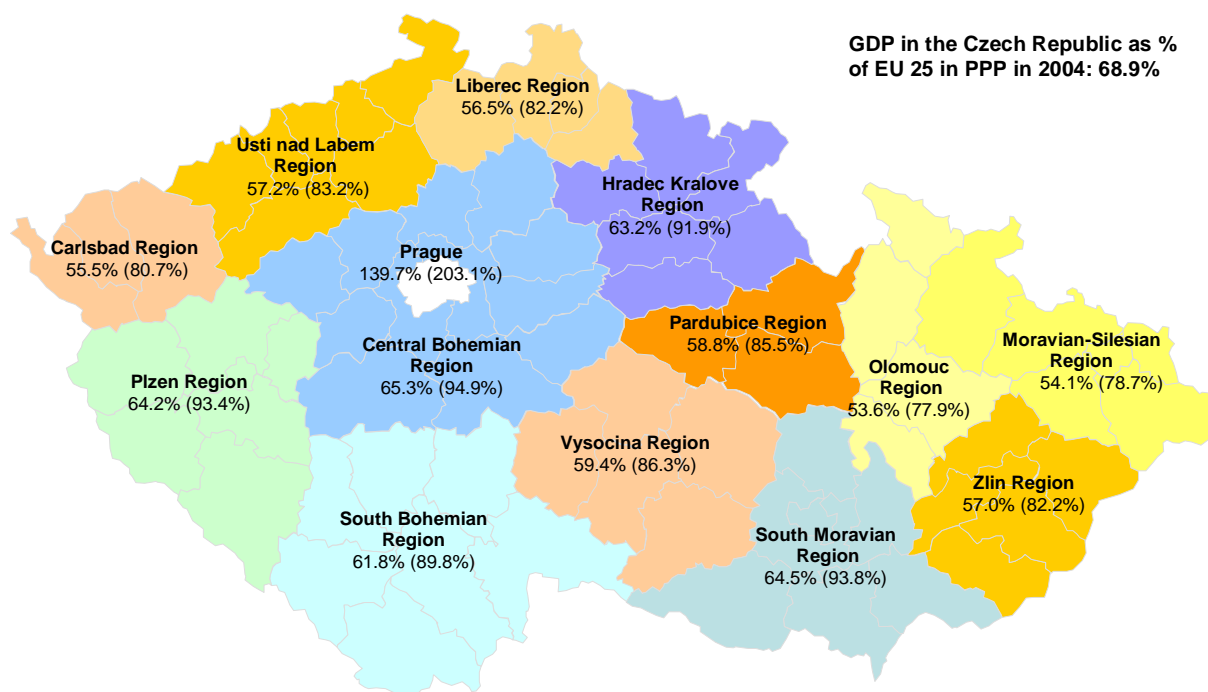
Source: Czech Statistical Office, values as % of GDP per capita in PPP, data for 2004
Note: The regions with the GDP (in PPP) higher than 60% of EU25 average are highlighted in blue colour

In terms of international comparisons, the forecasted relative Czech GDP per capita (in PPP) should reach 75.1% of the EU-25 average in 2006, compared to 72.9 % in 2005. In relation to other CEE and Baltic countries, the Czech Republic will reach the second highest GDP per capita values, just after Slovenia (81.5% of EU-25 average in 2006).

Figure 4: International comparison: GDP per capita in PPP, EU25 = 100
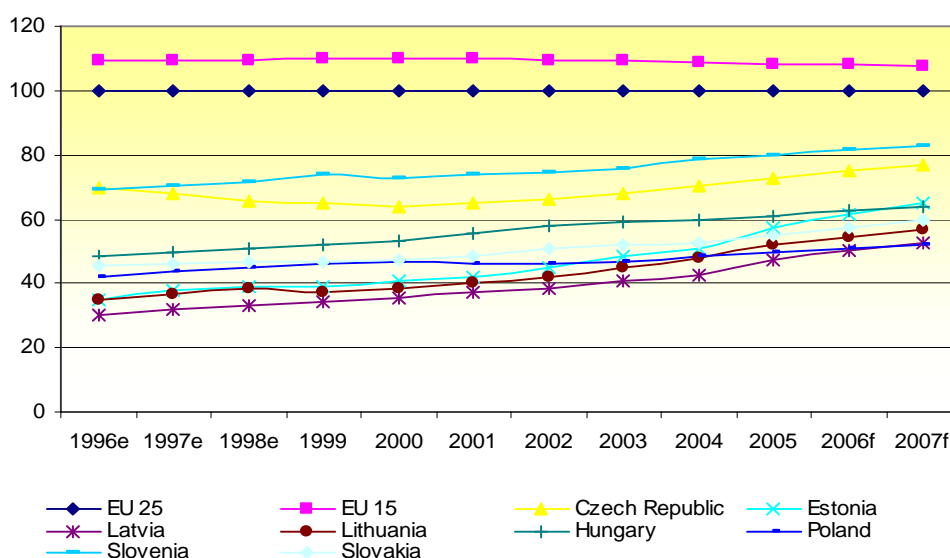
Source: Eurostat
Note: Figures for 1996, 1997 and 1998 are estimates; figures for 2006 and 2007 are forecasts

As can be seen from the figure below, inflation has remained at relatively low levels for the most part of the current decade.

Figure 5: Average inflation (%)
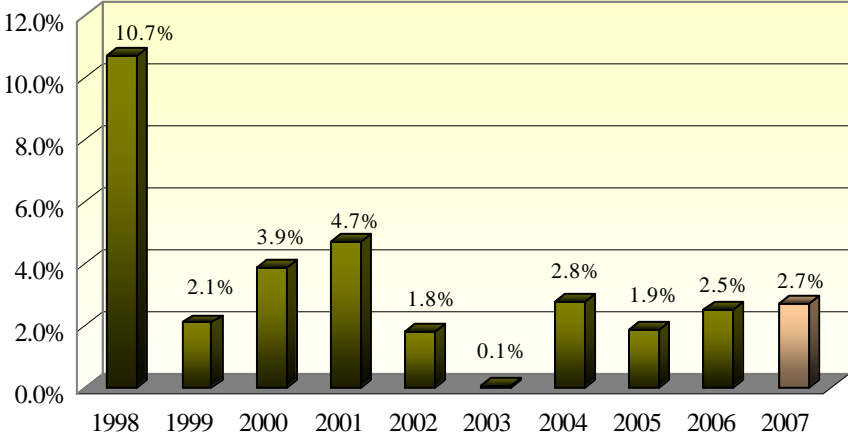
Source: Ministry of Finance of the Czech Republic

Labour market

The supply side of the labour market has been influenced by an increase in the subsistence level from 1 January 2006 and increases in the minimum wage from 1 January 2006 and 1 July 2006. These measures have resulted in increasing social benefits, which might weaken the motivation of people to seek and retain employment.

The ongoing reduction of unemployment in 2005 (seasonally adjusted) is mostly of a cyclical character and does not significantly improve structural problems.

Figure 6: Average unemployment level
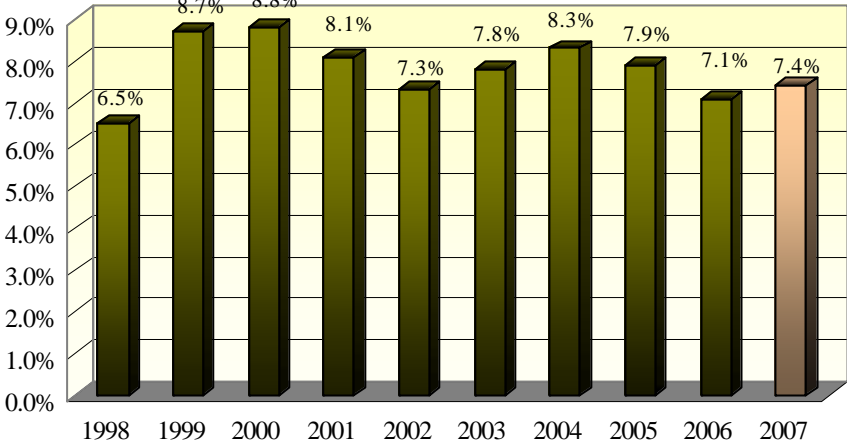
Source: Ministry of Finance of the Czech Republic

Demography

During the 1990s, the number of inhabitants of the Czech Republic fell continuously. While in 1990 there were 10.36 million inhabitants, in 2005 the population totalled 10.2 million. Preliminary data on the population structure at the end of 2005 showed that fertility slightly increased, mortality decreased, and the population has started to grow.

Figure 7: Population (in millions)
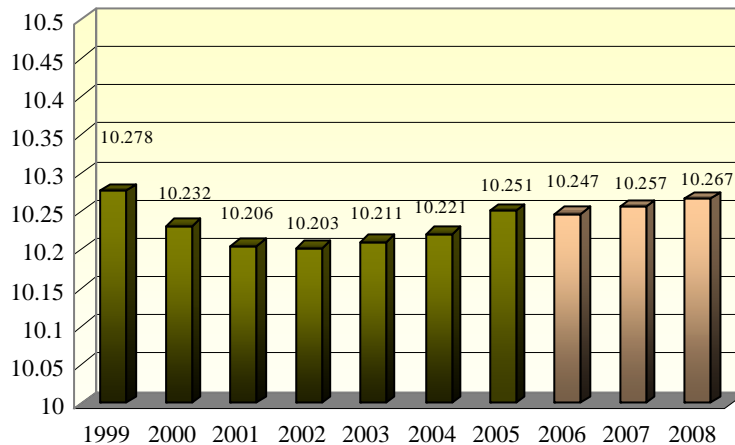
Source: Czech Statistical Office, Ministry of Finance of the Czech Republic

In terms of workforce resources, the most favourable demographic structure within the timeframe of available demographic documentation was probably reached in 2003. Since then, the size of the population comprising the 20-to-59-age group has already started falling and we are witnessing the beginning of the population-ageing process. Also, the size of younger demographic age groups continues to slowly diminish. The primary cause can be found in the low fertility rate. Despite the fact that in 2004 total fertility grew to 1.23 (against the minimum of 1.13 in 1999), this value is still very far from the reference value of 2.04 necessary to ensure long-term population stability. The development of the birth rate is influenced not only by lifestyle changes, but also by the low availability of housing for young families.

Figure 8: Population groups by age (%)
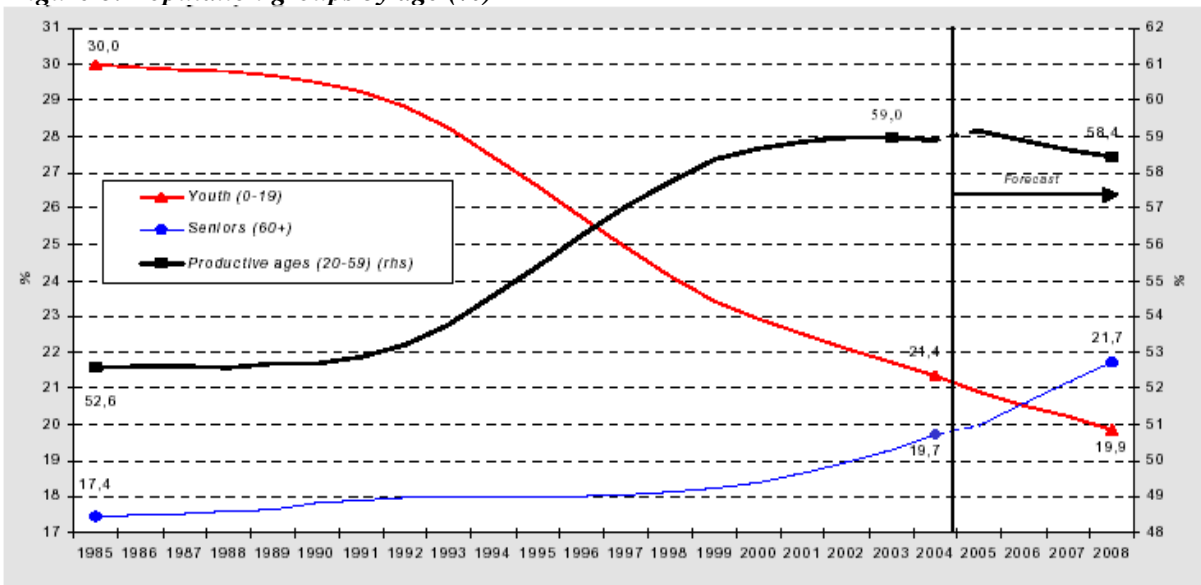
Source: Ministry of Finance of the Czech Republic, 2006

On the other hand, due to the nature of the demographic structure and the growing average life expectancy, the number and proportion of seniors within the population will rise. Immigration can only partially compensate for the unfavourable conditions caused by demographic ageing. The proportion of the group of young people in the total population is projected to fall from 30% in 1985 to below 20% in 2008. Similarly, the percentage of seniors within the population is projected to rise from 17.4% to 21.7%.

To set off the unfavourable effects of population ageing, the gradual extension of minimum retirement age has been adopted up to 2016. Under public finance reform, further changes were made, such as the abolition of temporarily curtailed early retirement pensions and indexation of pensions only to the extent set by the law, etc. However, since the end of 2003, the number of old-age pensioners has been rising again. The effective old-age dependency ration is expected to rise from 41.2% in 2005 to 42.6% in 2008 (Ministry of Finance of the Czech Republic, 2006). Due to population ageing, the pension account, which operates on the traditional pay-as-you-go system will face deficit tendencies in the future. The population ageing process will also affect the healthcare system. It is expected to have an important effect on both the revenue and the cost sides of the social health insurance system.

Education

A substantial part of the debate on the organisation and administration of education in recent years has centred on the need to address the marked fall in the population, the projected slow growth of population in the future and the need to reduce the number of schools.

Figure 9: Education levels of the population (2001)
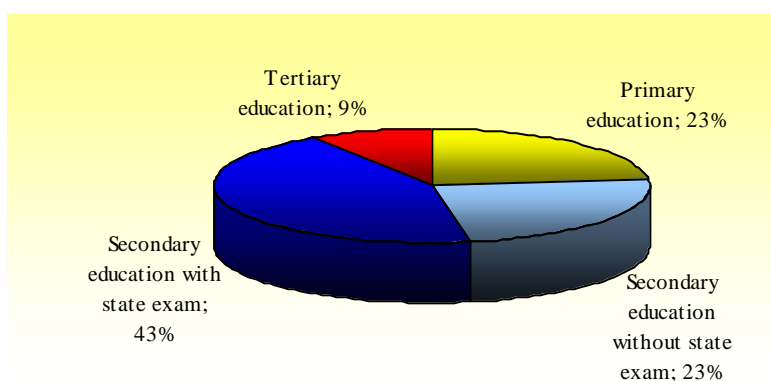
Source: Czech Statistical Office, 2001 Population Census

According to the 2001 population census of people 15 years and above, the share of the population with a primary level education was 23%, 66.4% had attained a secondary level, of which 43% passed the state final exam, and 8.9% of population had completed their tertiary level education. This represented a visible improvement in the general level of education compared to the previous census. In 1991, the share of the population with a primary education was 33.1%, with a secondary education 58.3% and with a tertiary education 7.2%.

In 2005, the percentage of the adult Czech population (aged 25-64 years) that had completed upper secondary education reached 89.9% whereas in the EU-15 this indicator was equal to 66% and in the EU-25 to 68.9%.

General government indicators

The fiscal balance of the Czech Republic ended with a deficit of 2.6% of GDP in 2005 (the deficit of EU25 reached 2.3%), in comparison with 3.6% in 2000. Despite the recent improvement in the government deficit, deficit tendencies still persist. The existence of structural problems can be seen from public-finance balance developments – the size of deficits does not correspond to the current

stage of economic cycle. Deficits occur in spite of using one-off receipts, and the relatively high pace of government debt growth persists.

With regard to the above-mentioned negative developments, general government reform is under way. In its effort to reduce fiscal deficits permanently, the government has set a 2006 target of a general government deficit of 3.7% of the GDP

The government's debt as a percentage of GDP compared to the EU average is considerably smaller (30.5% of the GDP compared to 63.4% of the GDP of the EU25). However, the evolution of the debt over time creates some concerns as the debt markedly rose from 12.2% in 1997 and 18.2% in 2000 to its current value of over 30% of the GDP.

Table 2: General data on the public sector – revenues

Revenues	CZ in 1995	CZ in 2000	CZ in 2005	EU10 in 2005	EU-25 in 2005
Revenues in % of GDP,	41.0	38.5	41.5	40.1	45.2
Direct tax revenues in % of GDP	9.6	8.4	9.5	8.6	12.9
Indirect tax revenues in % of GDP	12.3	11.5	12.1	14.2	13.6
Capital incomes in % of GDP	0.5	0.1	0.2	0.7	2.4
Social security contributions in % of GDP	14.4	14.5	15.3	11.5	14.1
Composition of the revenues (in % of total)					
Direct tax revenues	23.3	21.9	23.0	21.5	30.2
Indirect tax revenues	29.9	30.0	29.2	35.4	28.5
Capital incomes	1.3	0.4	0.5	1.8	1.3
Social security contributions	35.1	37.7	36.9	28.8	29.1
Share of local government revenues in total revenues (%)	28.0	24.2	28.8	25.1	25 (in 2004)

Source: Eurostat,, 2006

The government revenues reached 41.5% of the GDP in 2005, a comparable figure to the EU10 average of 40.1%, but lower than the EU25 average of 45.2%. The composition of revenues was more or less stable in the period from 1995 to 2005.

Financial sources from taxes, capital income and social security contributions made up about 89% of the total government revenues. In 2006, the general government revenue is expected to slightly fall compared with 2005, mainly due to legislative changes in personal income tax.

The share of local government revenues amounted to about 29% of the total revenues in 2005, a higher figure both in the chronological comparison with 2000 and also with the EU10 and EU25 average.

Table 3: General data on the public sector – expenditures

Expenditures	CZ in 1995	CZ in 2000	CZ in 2005	EU10 in 2005	EU-25 in 2005
Expenditures in % of GDP	54.4	42.1	44.1	42.1	47.5
Composition of expenditures (in % of total)					
Current expenditures	63.9	85.7	84.2	88.7	69.6
Capital expenditures	36.1	14.3	15.8	11.4	2.5
	CZ in 1995	CZ in 2000	CZ in 2004	EU10 in 2004	EU-25 in 2004
Major expenditure items					
Wages and employees compensation/GDP	-	-	8.0	11.4	10.9
Public services/GDP	-	-	4.8	6.4	-
Economic affairs/GDP	-	-	7.4	5.1	-
Social protection/GDP	-	-	14.2	14.0	-

Source: Eurostat, 2006

The ratio of the general government's total expenditure to the GDP increased from 42.1% in 2000 to 44.1%. However, in comparison with the 1995 level of 54.4%, it still represents a significant drop. The ratio is comparable to the EU level, while being higher than the EU10 average (42.1%) and lower than EU25 average (47.5%).

The majority of the expenditures is devoted to current spending, making up 84.2% of the total amount, a figure comparable to the EU10 average.

General health sector indicators

Figure 10: Trend of life expectancy at birth
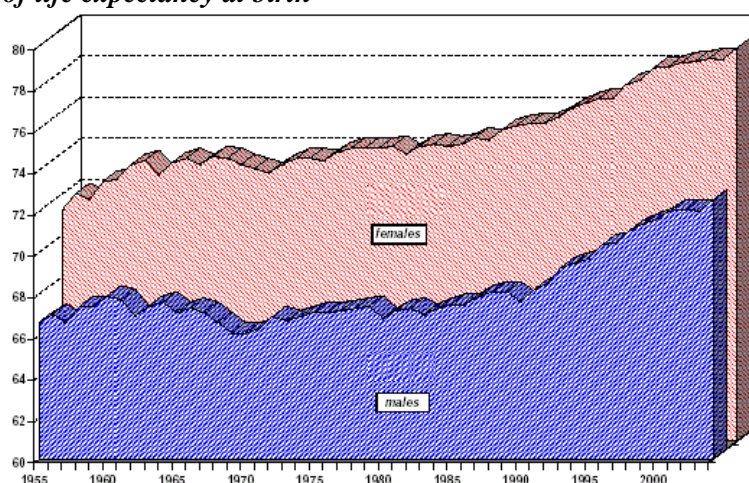
Source: UZIS, 2005

The health status of the Czech population has improved markedly since 1989, as evidenced by an increase in life expectancy to 72.88 years at birth for men in 2005 and 79.1 in 2005 for women, compared to an average of 67.7 years for men for the period 1986–1990 and 74.8 years for women over the same period. This increase has been the largest of all EU countries. In spite of this increase, life expectancy in the Czech Republic is still lower than the average of the EU Member States before 1 May 2004 (in 2000: 75.57 years in men and 81.74 years in women).

The overall death rate has fallen in recent years, but there is still a large difference between the level for the Czech Republic and those for the EU Member States (EU15) and Scandinavian countries.

Table 4: Health status (year 2004)

Indicator	Value
Infant mortality rate	3.75
Number of deaths per 1 000 population	10.5
Natural increment per 1 000 population	-0.93
Life expectancy at birth	
males	72.6
females	79.0
Mortality rate – neoplasms (per 100 000 population)	276.1
Followed up patients (registered by GP for adults)	
for hypertensive diseases per 100 000 registered patients	18,496.7
Diabetics under treatment per 100 000 inhabitants	6,967.1
Incidence of tuberculosis per 100 000 inhabitants	10.4
Infant mortality rate	3.75

Source: UZIS, 2006

Table 5: Healthcare system (2005)

Indicator	Value
Obligatory healthcare insurance	Yes
Proportion of expenditure on healthcare in the GDP	7.00
In-patients care health establishments - hospitals	195
Physicians (WTE)	
Number	40,802
per 10 000 inhabitants	39.8
Physicians in hospitals - in-patient care	
Number	8,937
per 10 000 inhabitants	8.7
Physicians in out-patient care (incl. out-patient care in hospitals)	
Number	29,510
per 10 000 inhabitants	28.8
general practitioners for adults	5,376
per 10 000 inhabitants aged 15 years and more	5.9
general practitioners for children and adolescents	2,250
per 10 000 inhabitants aged 0 - 19 years	9.9
Number of general nurses and midwives	
Number	82,249
per 10 000 inhabitants	80.3
Number of acute-care beds	
Number	65,022
per 10 000 inhabitants	63.4
Hospitalized persons per 10,000 people	2,172
Number of out - patients examinations/treatments per 1 person per year	15.24

Source: UZIS, 2006

Most finances within the healthcare system in the Czech Republic come from the social health insurance system, which covers compulsorily all Czech citizens and also other persons based on EU legislation or bilateral international agreements. Total healthcare sector expenditures, including public expenditures in addition to social health insurance and private expenses, equal to approximately 7 % of GDP. There are 195 hospitals with 65 thousands acute-care beds, i.e. there are 63.4 acute-care beds per 10,000 inhabitants, compared to European average of 43 acute-care beds per 10,000 inhabitants (OECD Health Data 2006, data for the year 2004 or latest available). Concerning the out-patient care, there are 5.9 general practitioners for adults per 10,000 inhabitants aged 15 and older and 9.9 general practitioners for children and adolescents per 10,000 inhabitants aged 0 – 19. As of number of out-patient examinations and treatments, the Czech Republic stands at the top of the EU with 15.24 doctor visits per person per year in 2005, which is more than double of the EU average (source: UZIS, 2006, OECD Health Data 2006).

General ICT usage indicators

Telephones

Access to fixed telephone lines has been decreasing due to the replacement of this service by mobile phones. In 2005, 61% of households had access to a fixed telephone line, as compared to 63% in 2003.

Figure 11: Number of telephone subscribers (per 100 inhabitants)
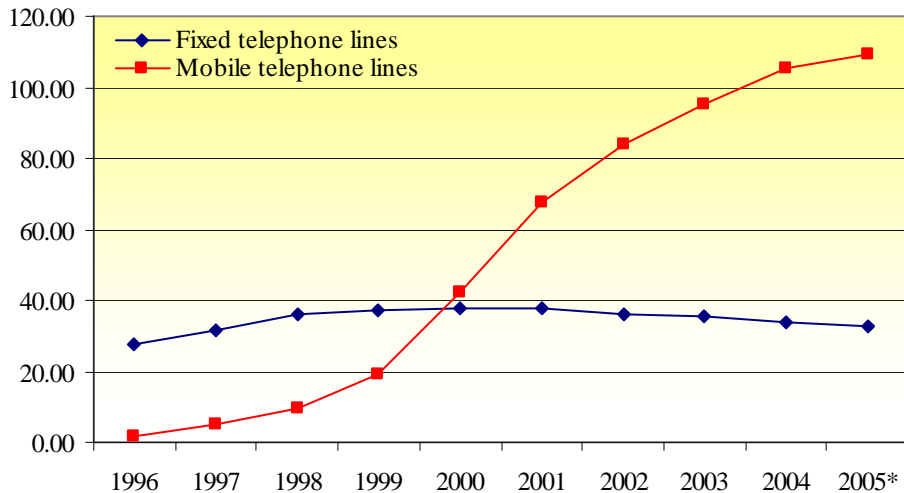
Source: Czech Telecommunication Office, 2006
Note: *Estimate

Personal computers and internet: Households and individuals

Almost one third of Czech households are equipped with a personal computer and approximately each fifth household has a connection to the internet. The number of households with one or more computers increased by 50% between the years 2001 and 2004. The ratio of equipped households is higher in the case of households with children than in households without children. Out of those households equipped with a computer, 75% are connected to the internet.

According to the data from Czech Statistical Office the total number of ADSL connections as of end of 2006 equalled to 492,570, Cable TV connections to 216,000 and WiFi connection to approximately 350,000. There is a clear trend of decreasing internet connections through dial-up services. On the other hand, broadband connection is becoming more popular.

The main reasons that households with a computer are not connected to the internet are high connection charges and access to the internet at some other place (at workplace, school, etc.). In comparison to the EU, where 42% of households are connected to the internet, the Czech Republic is with the connection of only 27% far below average EU level

Figure 12: Household access to PCs and the internet
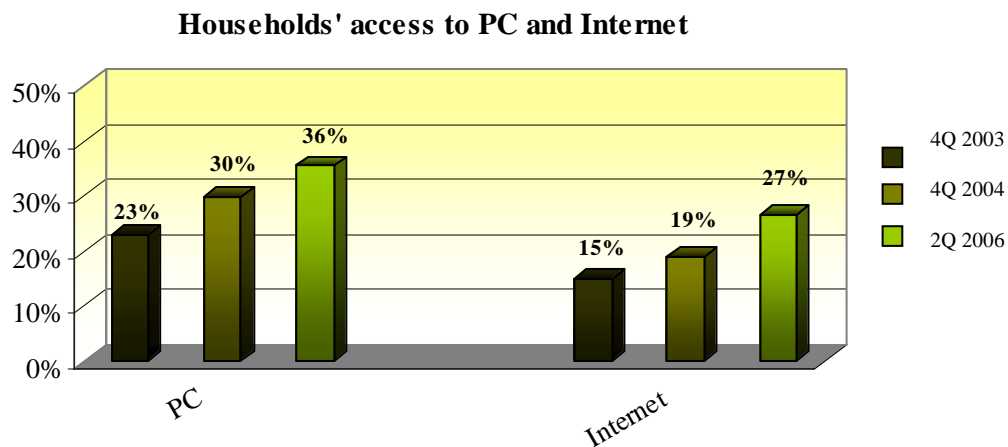
Households' access to PC and Internet

Legend: 4Q 2003, 4Q 2004, 2Q 2006

PC: 23%, 30%, 36%
Internet: 15%, 19%, 27%

Source: Czech Statistical Office (Results of ICT Usage Survey in Czech Households and among Individuals 2006)

Figure 13: Type of internet connection used by households
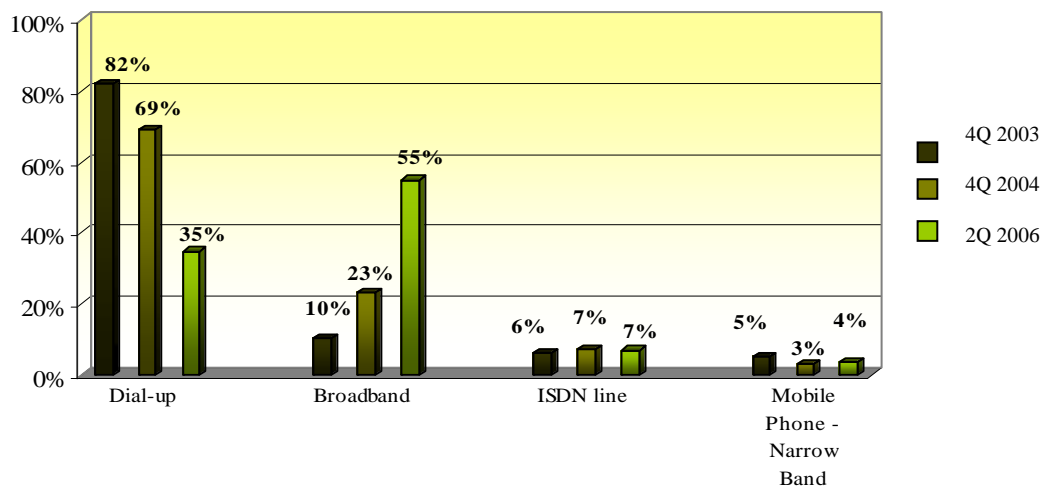
Legend: 4Q 2003, 4Q 2004, 2Q 2006

Dial-up: 82%, 69%, 35%
Broadband: 10%, 23%, 55%
ISDN line: 6%, 7%, 7%
Mobile Phone - Narrow Band: 5%, 3%, 4%

Source: Czech Statistical Office (Results of ICT Usage Survey in Czech Households and among Individuals 2006)

According the survey conducted by the Czech Statistical Office in second quarter 2006, 56% of population aged 16+ used a personal computer during the last 3 months. There were quite big differences in PC usage by age and education. Usage of personal computers is more popular among people with a university degree (83% used PC in the 3 months) and among people within the 16-24 age group (84% used computer in the 3 months). In contrast, only 4% of PC users are in the 65+ age group.

37% of the population aged 16+ has taken a computer course or received relevant training. The majority of people with training are people with university degree (71%) and within the age group 16-24 (85%).

Statistics regarding internet users correspond to those regarding PC users. 47% of the population aged 16+ used the internet during the last 3 months at time of survey. The internet is especially popular among individuals with a university degree (78% used the internet in 3 months) and in the age group 16-24 (78% used the internet in the last 3 months). Comparatively, only 3% of internet users are individuals aged 65+. 70% of internet users used the internet at home, 45% at work and 21% at school.

Figure 14: Computer literacy according to the survey of the STEM MARK agency; undertaken in August 2005 (% of respondents in each category, N=16 344)
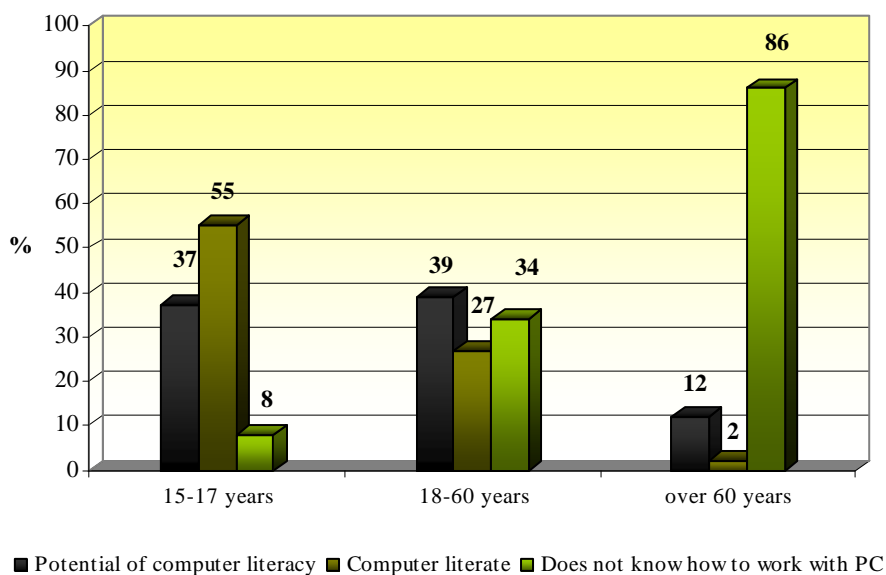
Source: STEM MARK agency, 2005
Note: Potential of computer literacy is defined as group of people who work with PC, but are still not classified as computer literate (general knowledge is missing – e.g. understanding of folders, data compression, etc.)

Personal computers and internet: Enterprises

Almost all of the enterprises with more than 5 employees are equipped with a computer (94%). There are approximately 40 computers per 100 employees in Czech enterprises. By the beginning of 2006 91% of enterprises were connected to the internet and two thirds had their own web pages.

Figure 15: Share of business using the given technology
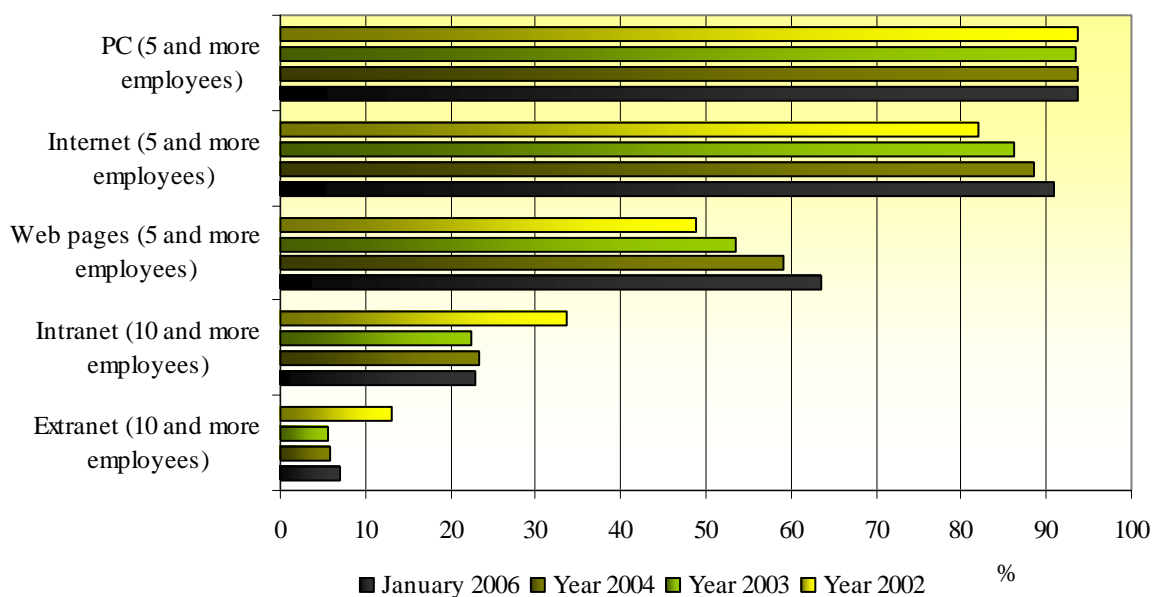
Source: Czech Statistical Office, 2006

Personal computers and internet: Public Administration

Currently, almost all public authorities have at least one PC at their disposal and a high rate of internet connection as well. In recent years there has been a rapid expansion in broad band connections, mainly in central administration and in larger municipalities with a population higher than 500. Currently, only regional authorities have full coverage with broadband connection, while the coverage of small municipalities merely equals to 26%. A similar situation can be observed in the availability of local networks. With respect to web pages, only the small municipalities appear to be lagging behind (60% coverage), while at least 84% of central administration bodies set up their own web pages by the end of year 2004.

Figure 16: Selected ICT indicators at public administration in 2004 (in %)
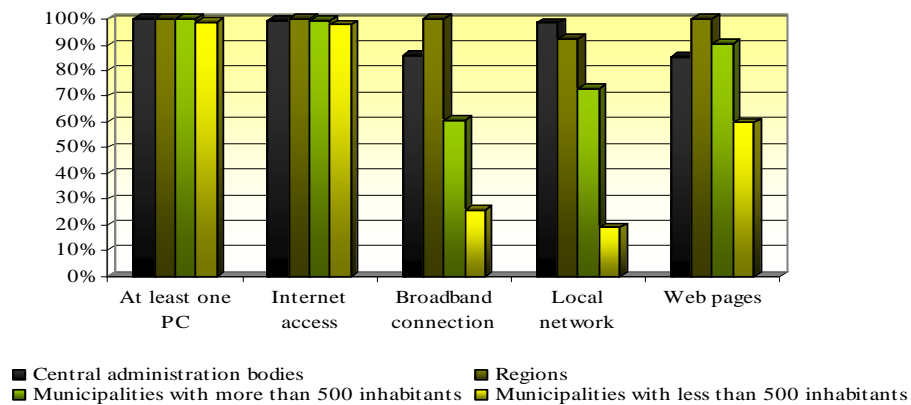
Source: Czech Statistical Office, 2005

Regional issues

The regional distribution of all the internet connections and broadband is depicted in the following graph. The greatest share of the internet connection, as well as broadband connection is in Prague. Other regions are quite comparable in respect of internet connection, but the broadband coverage varies more considerably. For instance, the internet connection in Central Bohemian Region is the second highest among all the regions, while the share broadband penetration is notably lower.

Figure 17: Regional differences of households' connection to Internet in 2006
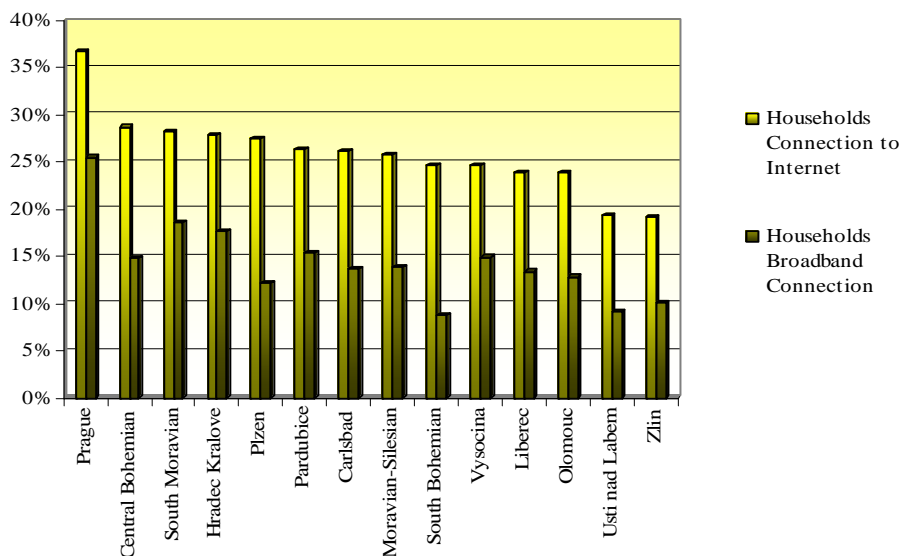
Source: Czech Statistical Office, 2006

1. INSTITUTIONAL SETTING OF THE GOVERNMENT, PUBLIC ADMINISTRATION AND THE HEALTH SECTOR

I.1. The institutional structure of the general government

The Czech Republic is a Parliamentary Republic instituted on 1 January 1993 after the split of the former Czechoslovakia. The bicameral Parliament is endowed with legislative powers and is composed of a Lower and Upper House. Elections for the 200 members of the Lower House (House of Deputies) take place every 4 years. The Upper House (Senate) consists of 81 members elected for 6 years. Elections take place every 2 years for only one third of mandates.

Figure 18: Separation of powers in the Czech Republic
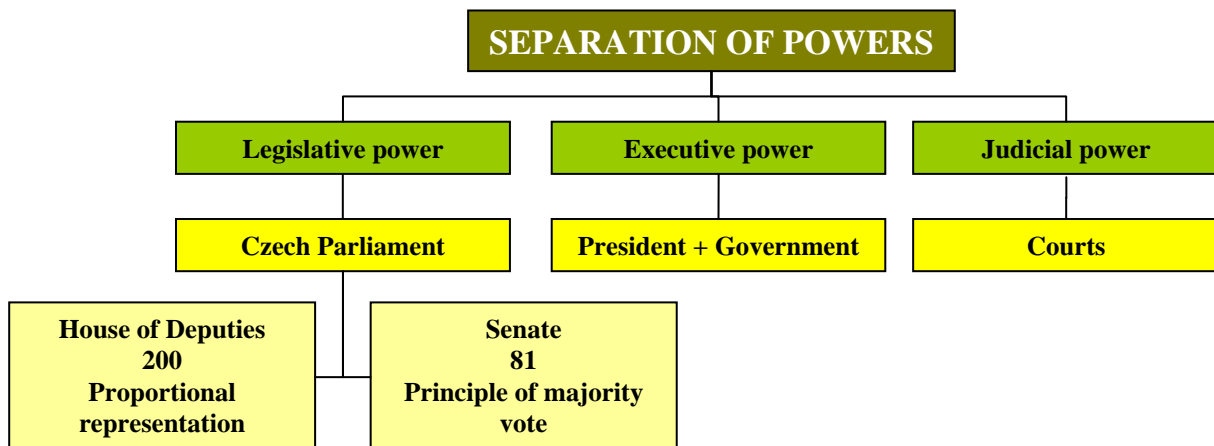
The Government is the supreme body of executive power. It consists of the Prime Minister, the Deputy Prime Minister and the Ministers. It coordinates the activities of the ministries and the central bodies of the state administration and manages the state administration throughout the national territory. The Government has exclusive legislative initiative in terms of the state budget.

The Government makes decisions as a body. In order to be adopted, a decision of the Government must be approved by the majority of all its members. The Prime Minister organizes the work of the Government, presides over its meetings, acts in its name and pursues other activities entrusted to him by the Constitution or other laws. The Government may issue decrees for the implementation of laws, providing that it does not exceed its legal powers. Decrees shall be signed by the Prime Minister and the pertinent Member of Government.

In the general elections, which took place in June 2006, the possible coalition and opposition parities both gained 100 mandates in the parliament, which in turn had led to the stalemate situation. Only in January 2007 the new government was formed and obtained a confidence vote. Prime Minister Topolánek from the Civic Democratic Party formed a three-party coalition with the centrist Christian Democrats and the Green Party.

Altogether, there are 15 ministries in the Czech Republic, the list is presented below:

1. Ministry of Finance
2. Ministry of Agriculture
3. Ministry of Labour and Social Affaires
4. Ministry of Health
5. Ministry of Justice
6. Ministry of Education, Youth and Sports
7. Ministry of Transport
8. Ministry of Environment
9. Ministry of Foreign Affairs
10. Ministry of Culture
11. Ministry of Defence
12. Ministry for Regional Development
13. Ministry of Interior
14. Ministry of Informatics
15. Ministry for Industry and Trade

Office of the Government of the Czech Republic

The Office of the Government of the Czech Republic (hereinafter the "Office") performs professional, organisational and technical tasks necessary to support the activities of the Government of the Czech Republic and its bodies. The Office is a budgetary organisation.

The Office directly provides conditions necessary for the work of the technical departments of members of the Government, which are part of its structure. Among other things, the Office also co-ordinates Regulatory Reform and Central State Administration Reform in the Czech Republic. For this purpose, the Department of Regulatory Reform and Central State Administration Reform is charged with the implementation of particular tasks.

Revenues and expenditures at various government level

Given the breakdown of government revenues for 2005, the greatest share of resources stems obviously from income taxes, social security contributions and from domestic taxes on goods and services. In respect to the centralisation of revenues, it is worth noting that local budgets constitute about 28.5% of the Consolidated General Government Budget.[11] Local budgets also receive a higher proportion of revenues derived from income taxes, taxes on capital gains and property taxes than does the General Government Budget. Local budgets also gain significantly higher "non tax revenues" than the state budget, with a consolidated figure amounting to 53.4%.

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[11] The sum of the figures in various rows does not equal numbers in row 6 and 7 because some items are excluded in the consolidated statements – see also the notes to the corresponding tables.

Table 6: Revenues at the central and local level (for 2005, in EUR million)

Type of revenue (EUR million)	State Budget and NF	Central Extra-budgetary Accts.	Social Security	Consolid. Central Govt.	Local budgets	Consolid. Public budgets	Consolid. General Govt.	Local/Consolid. General. Govt.
	1	2	3	1+2+3=4	5	1+5=6	4+5=7	=5/7
TOTAL REVENUE & GRANTS	27,047	1,725	5,670	32,226	11,134	34,113	39,041	**28.5%**
TAX REVENUE	**25,330**	**557**	**4,504**	**30,168**	**5,658**	**30,812**	**35,589**	**15.9%**
Income Profits & Capital Gains Tax	6,549	0	0	6,549	3,095	9,645	9,645	**32.1%**
Social Security Contributions	9,927	0	4,504	14,209	0	9,752	13,972	**0.0%**
Taxes on Payroll, Manpower	0	0	0	0	0	0	0	
Taxes on Property	272	0	0	272	167	439	439	**38.0%**
Domestic Taxes On Goods & Services	8,576	557	0	9,133	2,396	10,972	11,529	**20.8%**
Taxes on International Trade & Transactions	-2	0	0	-2	0	-2	-2	**0.0%**
Other Taxes	6	0	0	6	0	7	7	**3.0%**
NON-TAX REVENUE	**533**	**343**	**32**	**908**	**1,039**	**1,572**	**1,947**	**53.4%**
CAPITAL REVENUE	**32**	**0**	**1**	**33**	**411**	**443**	**444**	**92.5%**
GRANTS	**1,152**	**825**	**1,133**	**1,117**	**4,026**	**1,285**	**1,061**	**N/A**

Source: Ministry of Finance, prepared according the IMF standard GFS 1986
Note: NF=National Fund accounts;
The sum in columns 6 and 7 of the row 'Social Security Contributions' does not correspond to the formula in the head row as the social security payments by government institutions for their own employees are excluded in the consolidated statements.
The figures in columns 6 and 7 of the row 'Grants' do not correspond to the formula in the head row, as the subsidies granted from the state budget to local budgets are not included in the total sum to avoid the double counting of revenues and expenditures in the consolidated statements

The greatest share of expenditures is devoted to social security payments, followed by expenditures on health, economic affaires and services, and education. With respect to the regional breakdown of expenditures, the local budgets make up approximately 25.7% of the consolidated general government budget. Overall the financing of education, primary and secondary education in particular, is mainly is spent at local level as 74% of all educational expenses are covered from local budgets.

Table 7: Expenditures at the central and local level (2005, in EUR million)

Type of expenditure (EUR million)	State Budget and NF	Central Extra-budgetary Accts.	Social Security	Consolid. Central Govt.	Local budgets	Consolid. Public budgets	Consolid. General Govt.	Local/Consolid. General. Govt.
	1	2	3	1+2+3=4	5	1+5=6	4+5=7	5/7
TOTAL EXPENDITURES	**28,946**	**3,371**	**5,654**	**35,754**	**10,887**	**35,765**	**42,323**	**25.7%**
General Public Services	1,677	0	0	1,677	1,261	2,938	2,938	42.9%
Defense	1,872	0	0	1,872	8	1,880	1,880	0.4%
Public Order & Safety	1,206	0	0	1,206	172	1,378	1,378	12.5%
Education	1,056	0	0	1,057	3,067	4,124	4,124	74.4%
Health	288	0	5 654	5 941	294	582	6 235	4.7%
Social Security & Welfare	11,527	0	0	11,527	987	12,513	12,513	7.9%
Housing & Community Amenities	807	29	0	836	1,985	2,792	2,821	70.4%
Recreation, Cultural & Religious Affairs & Services	290	4	0	294	745	1,035	1,039	71.7%
Fuel and Energy	74	0	0	74	1	75	75	1.2%
Agriculture, Forestry, Fishing and Hunting	303	953	0	1,256	56	360	1,312	4.3%
Mining & Mineral Resources, Manufacturing & Construction	145	0	0	145	8	153	153	5.2%
Transportation & Communication	825	1,474	0	2,300	1,897	2,722	4,196	45.2%
Other Economic Affairs & Services	1,160	685	0	1,845	58	1,218	1,903	3.0%
Other Expenditures	7,715	226	0	5,947	350	4,171	2,215	N/A

Source: Ministry of Finance, prepared according the IMF standard GFS 1986

Note: NF=National Fund accounts

The formula in the columns 6 and 7 do not equal the sum of figures of Other Expenditures for, the same reason as the revenues side.

I.2. Regional and local government

The Czech Republic is a unitary State composed of municipalities and regions. The term "Regional Government" refers to the governing bodies of the 14 NUTS III regions. The NUTS II units (8) were created by merging units from several smaller regions. The number of NUTS IV regions, named "Districts," equals to 76 (at present the District Authorities no longer exist). On the local level, there are about 6,240 Municipalities.

Figure 19: Nuts II and III Regions in the Czech Republic
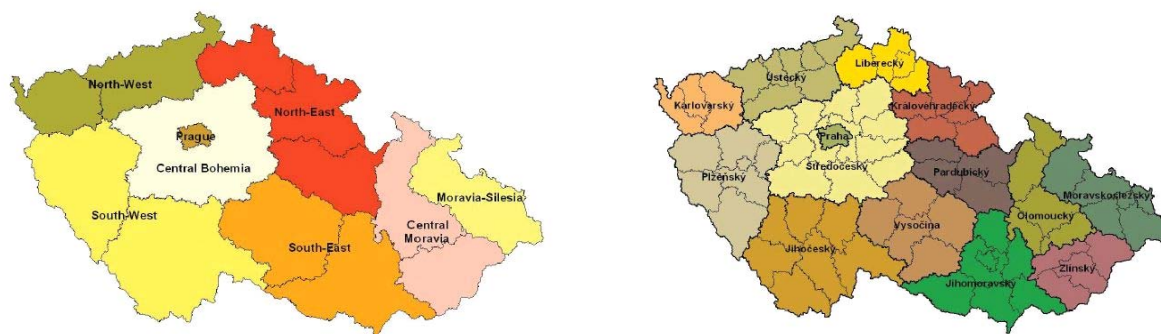
Source: Internet

NUT II units

In the Czech Republic, the reasons behind the creation of the NUTS II regions are of a strictly statistic nature. However, they also allow the drawing of financial resources from Structural Funds, for which purpose NUTS II Regional Boards and a NUTS II Regional Development Committee were established. A NUTS II Regional Board is composed of elected members of Regional Councils from the regions which comprise the NUTS II region. Each Regional Council elects ten representatives to the NUTS II Regional Board from among its members. If a NUTS II region is equal to a single region, the NUTS II Regional Board is equal to the regional council.

Higher Territorial Self-Governing Units – 14 NUTS III Regions

The **Regional Assembly** is composed of members who are elected by universal, equal and direct suffrage for a four-year term. It monitors the regional budget and subventions given to municipalities. It can also submit draft laws to the House of Commons. The number of Regional Assembly representatives depends on the size of the region:

➢ Regions with up to 600 thousand inhabitants - 45 members

➢ Regions with 600 to 900 thousand inhabitants - 55 members

➢ Regions with over 900 thousand inhabitants - 65 members

The **Regional Council** is the executive body of the region. When executing its duties, the Council reports to the Regional Assembly. The Council is formed by the President of the Region, his deputies and other Council members who are elected by and within the regional assembly for a four-year term. The council is the executive body and can be assisted by regional services (the Regional Authority), headed by a director.

Other body of the region is the **Regional Authority** (translated also as Regional Office) that fulfils activities assigned by the Council and shall assist in the activities of committees and commissions and further performs the delegated activities with the exception of matters, which the law assigns to the Council, the Board or a special body. In the lead of the Regional Office stands a director, who is accountable to the President of the Region.

Figure 20: The scheme of public administration
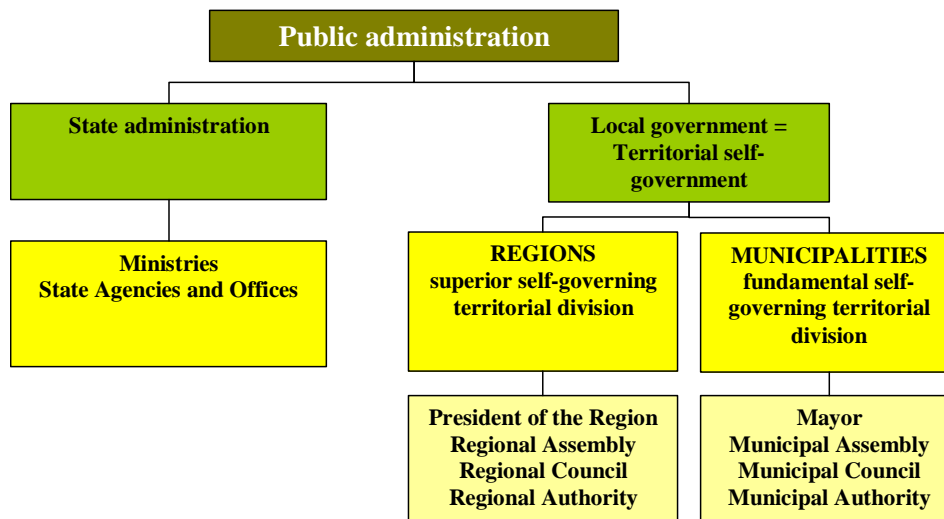
The region administers its matters independently. In case that the region is entrusted the performance of state administration functions, regional bodies perform them as their delegated power. A region is obliged to ensure performance of delegated power in its administrative district. If a special law defines powers of regions and does not indicate the powers as delegated powers to the region, the activities in question are always to be considered as a part of the independent competence of the region.

The region is not subordinated to the central governmental authorities in the areas of independent competence. In carrying out its self-government, the region is bound only by the legal order, not by internal acts of the State. The State interference is possible only in case of break of constitutionality and legality.

Independent competence of the region is stipulated by the Act on Regions, which arranges into this sphere such matters, which are in interest of the region and its citizens, if it is not delegated competence of the region. The following competences fall with the independent competence of regions:[12]

➢ Secondary education (also special primary schools)
➢ Road networks
➢ Environment, waste management
➢ Regional public transport
➢ Regional development
➢ Establishing health institutions – hospitals, emergency units
➢ Founding legal entities
➢ Economy of the region, regional budget
➢ Collection of regional fees
➢ Concept of tourism development
➢ Social services
➢ Others

The budget of the region generally consists of the tax income (about 40%, including personal income taxes, corporate income taxes and VAT)[13] and of the central state budget subsidies. The subsidies from the central budget are broken down into the following categories: a subsidy for the execution of the

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[12]   Source: Public Administration in the Czech Republic (2004)
[13]   A detailed breakdown of the split of VAT, income taxes and other taxes between State budget, regions and municipalities can be found in the annex.

state administration, a transport subsidy and a subsidy for taking over the responsibilities of the former District Authorities (e.g. subsidies for social services). The major expenses are devoted to the transport subsidies, social and health issues, education (payments to primary and secondary schools under the competence of the regions), then to the internal administration and to culture and tourism.

Fundamental Territorial Self-Governing Units - Municipalities

Municipality level governments have a very similar structure to that of the regional governments, namely consisting of the Municipal Assembly, the Council, the Mayor and the Municipal Authority.

The **Municipal Assembly** is composed of members elected by universal and direct suffrage for a four-year term. This assembly appoints the members of the municipal committees, which are deliberative bodies for the Municipal Assembly.

The **Municipal Council** is composed of members elected by and within the Municipal Assembly for a four-year term. The mayor and vice-mayors are always members of the Municipal Council. This executive body can form specific commissions, which are deliberative or executive bodies for the Municipal Council.

The **Mayor** or Lord Mayor is elected by and within the municipal Assembly for a four-year term. The mayor heads the municipal board and administration and represents the municipality. In municipalities with fewer than 15 councillors, the mayor ensures the executive authority by himself.

The **Municipal Authority** is one of the municipal bodies, and is similar to the position of the Regional Authority. The Municipal Authority performs activities delegated by the Municipal Assembly or Municipal Council.

As there are no District Authorities in the Czech Republic anymore, since the competences for regional/local governance have been split between regions and municipalities. Concerning the relation between a municipality (a fundamental self-governing unit) and a region (a higher self-governing unit), there is no superiority or inferiority in this relation, as a municipality has a general competence. It means that if something is under competence of territorial self-government and it is not explicitly stipulated that it is under competence of a region, it is always under competence of a municipality.

The overall general competences of municipalities can be summarised as follows (there are about 6240 municipalities):[14]

- Municipal budget
- Local development
- Administration of local charges
- Municipal police
- Primary education (establishing and administrating pre-school establishments, primary school and primary art schools)
- Landscape planning
- Municipal public transport
- Others

Based on the type of powers delegated by the state administration, municipalities are currently distinguished as follows:

- Municipality
- Municipality with Registry Office
- Municipality with Building Authority
- Mandated Municipality
- Municipality with Extended Powers

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[14] Source: Public Administration in the Czech Republic (2004)

Bodies of all municipalities perform delegated power in matters that are stipulated by special laws, in the fundamental scope and for its administrative district, which is the same as the territorial district of the municipality. Besides these basic delegated powers, bodies of Mandated Municipality and Municipalities with Extended Powers perform also other functions (the Municipality with Extended Powers is also a Mandated Municipality).

Municipality with Extended Powers – altogether 205 cities. These municipalities serve as a state administration bridge between regions and municipalities. The major competences are:

- Registry of citizens
- Issuance of personal ID cards, driving licences, car registration books
- Registry of motor vehicles,
- Issuance of trade licences
- Payment of Social Security Benefits
- Environmental protection
- Water supply and sewage management
- Agriculture and forest management, fishing and hunting regulation
- Transport and highway management (related only to road class II and III)
- Others

Mandated Municipality – altogether 389 municipalities, which execute the state administration in its regional competence (usually also for other smaller surrounding municipalities). The major competences are:

- Securing elections (parliamentary, regional, local)
- Water supply and sewage management
- Environmental protection
- Protection of agricultural land
- Others

The capital city of Prague is divided into metropolitan districts. Each of them has its own elected local councils. The assembly of the capital is composed of members who are elected by universal and direct suffrage for a four-year term. Councillors of the assembly appoint the Lord Mayor of the city as well as the members of the executive municipal council of the city. It is also worth noting that the capital Prague is both a municipality and region with only one assembly and one council.

The municipal budget generally consists of tax income (about 40%, which includes personal income taxes, corporate income taxes and VAT, immobility's tax, etc.), of the non-tax income (20%) and the central state budget subsidies (40%). Expenditures are broken down into operational expenditures (including operational costs of the state administration, transport subsidies, social insurance and unemployment payments, housing and regional development expenses) and capital expenditures, which are spent mostly on transport, state administration, water infrastructure and housing.

I.3. The institutional framework of the healthcare system

In 1990 and 1991, in the midst of the democratization process, a dramatic liberalization of the healthcare system took place. The principle of the free choice of healthcare facilities was introduced. The huge regional and district health authorities were dismantled. In 1991, new laws were approved, especially the General Health Insurance Act (No. 550/1991 Coll.) and the Act on the General Health Insurance Fund (No. 551/1991 Coll.). Since then, the healthcare system has moved towards a compulsory social health insurance model, with a number of insurers financing healthcare providers on the basis of contracts.

Since the early 1990s, considerable changes have been implemented in the Czech healthcare system. A majority of planned changes have taken place and the implementation process has been remarkably smooth. A complete reconstruction of healthcare facilities and authorities has been achieved and a

health insurance system has been created. A Medical Chamber, a Stomatological (Dentists') Chamber and a Pharmacists' Chamber were established and there was a re-emergence of medical professional societies and associations of nurses and other healthcare professionals. A new system of home care, based on private care providers, has been established (please refer also to Section I.3.4). At the same time, there has been an almost complete privatization of primary healthcare, the pharmaceutical industry, pharmacies, healthcare support firms, spa facilities, etc. The only exception remained the in-patient sector.

In 1992, the social health insurance system was adopted as a principal mean of financing healthcare. The General Health Insurance Company (GHIC) and, subsequently, branch (employer based) health insurance funds were established. There were up to 27 health insurance companies at one period in the mid-1990s; at the beginning of 2000, the number had decreased to 9 (all of them are non-profit public entities established under specific laws – one law for GHIC, and a separate one for the 8 branch health insurers).

Both state and private healthcare facilities increasingly made contracts with health insurance companies, involving payment from the outset on a fee-for-service basis. For payment purposes, an extensive list of healthcare procedures was created, which is continuously amended based on negotiations results between legally nominated partners – representatives of health service providers and insurance companies.

However, not all of the originally intended consequent changes have been fully completed and the Czech healthcare system is still facing a number of problems. Within the five years following 1992, escalating costs of health services driven by fee-for-service payments proved unsustainable. In primary healthcare, capitation fees replaced fee-for-service payments as a primary payment mode. A new mode of payment for hospitals was introduced (budgets instead of fee-for-service) and the fee-for-service payments were also modified for out-patient specialists. Act No. 48/1997 Coll., which enabled these changes, was originally limited to two years (to be replaced by DRG-based payment system for acute care hospitals), but this limitation was twice prolonged and finally cancelled by Act No. 459/2000 Coll.; thus, the 1997 law remains in force.

In a nutshell, the healthcare system in the Czech Republic can be described by three main features: (1) it offers social health insurance with universal membership (the Bismarckian model of 9 competing public insurers with open admission); (2) its funding is received through contributions of individuals, employers and the State; and (3) it offers a diversity of provision, secured mostly by private out-patient care providers (and pharmacies) and public hospitals, both having contractual arrangements with insurance companies and taking part in negotiations of stakeholders on insurance coverage and payment issues. The Government supervises the negotiations and ultimately has to approve the result. It may act on its own if the parties fail to agree. Recently (first half of 2006), the role of the State has been significantly strengthened by a series of legislative acts approved amidst significant political controversies. Recent developments in the Czech healthcare system are described in another section of the Report.

Figure 21: Structure of the Healthcare Sector
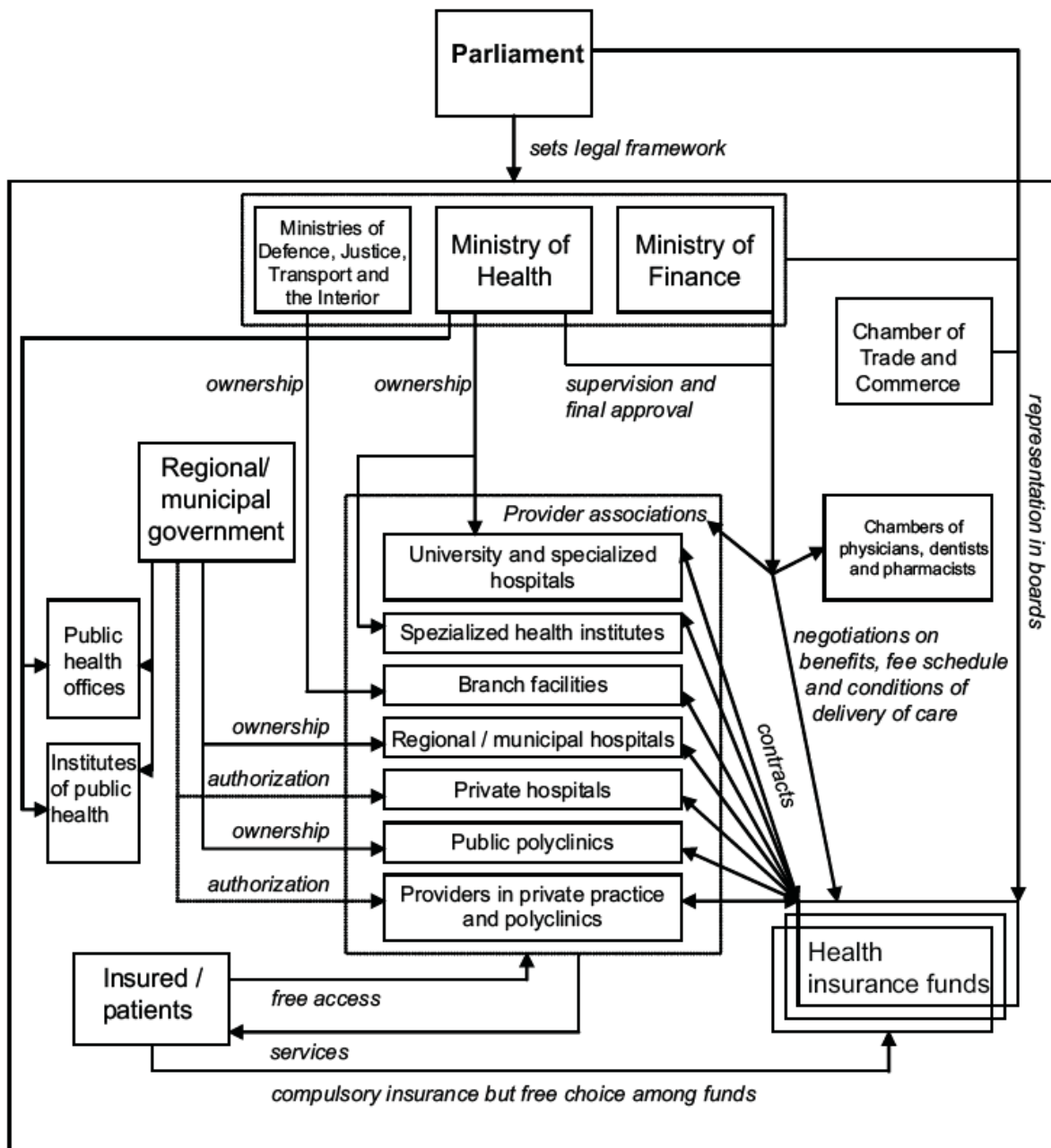
Source: Healthcare Systems in Transition – Czech Republic, 2005

I.3.1.   National government

The body responsible for the state administration in the field of public health protection in the Czech Republic is the Ministry of Health. The position of the Chief Public Health Officer has been set up at the Ministry of Health in order to deal with issues concerning public health protection, management and control. The Chief Public Health Officer serves as Deputy Minister of Health.

Furthermore, the Ministry of Health directly controls specialised healthcare centres, teaching hospitals, and bodies engaged in the protection of public health. Throughout the country there is a dense network of State Health Institutes and Hygiene Services directly supervised and managed by the Chief Public Health Officer.

The Ministry of Health is a central administrative body created by a statute, and its framework of responsibilities is specified to include healthcare, the protection of public health, scientific research in healthcare, healthcare facilities under its direct management (inter alia 19 teaching hospitals and specialized clinics), the search for, protection of and use of natural curative sources, natural curative spas and the sources of natural mineral waters, drugs and healthcare technology for disease prevention, diagnostics and cures, health insurance and the healthcare information system.

With respect to other central state administration bodies, the role of the Ministry of Finance consists mainly of price setting for pharmaceuticals, maximum monetary value of points (used for fee-for-service payments), co-approval of health insurance plans submitted by health insurance companies to the Government, and the preparation of the State Budget, including appropriations for heath insurance (payments to the social health insurance system on behalf of the so called "state insurees"- i.e. economically inactive people seniors, children, students, unemployed, women on maternity leave etc., see also section I.4 Financing Structure) and of line ministries. It is important to note that capital expenditure for healthcare is mostly funded by the State Budget, either via Ministry of Health, directly by the Ministry of Finance, and also via regional government budgets, as capital expenditures for expensive equipment and construction of healthcare facilities is for the most part not incorporated into payment mechanism for care delivered by providers.

The role of the Ministry of Defence consists mainly of the operation of own healthcare facilities and of handling of emergency situations (however, it is the Ministry of Health that is in charge of the part of Integrated Emergency System when concerning urgent healthcare and public health). The Ministry of Transport also runs a separate heath care network via the Czech Railways (a joint stock corporation fully owned by the Czech State).

I.3.2. Regional governments

State administration at the district level was cancelled at the end of 2002. In certain cases, municipalities are the owners and operators of small hospitals. Several dozen small hospitals have been transformed into the form of commercial companies and some have been privatised, but continue to be financed from statutory health insurance. The network of outpatient services, including primary care practices, and nearly all pharmacy services have been privatised. The owners of those facilities are doctors, pharmacists, and other operators. Facilities providing outpatient healthcare services are registered by the regional authorities pursuant to Act No. 160/1992 Coll. (Non-state Healthcare Facilities). Registration is conditional upon the fulfilment of specified conditions for the provision of healthcare services. If they are not adhered to, registration must be withheld (However, obtaining a registration does not automatically mean a contract with health insurance companies – see below).

As of 2003, registration agenda of out-patient services has been transferred to the regions. Also, with the creation of regions, all regional hospitals (with the exception of teaching hospitals and specialised centres), and also smaller hospitals that at that time belonged to the State, have been transferred to the newly created regions. In line with these reforms, debts of hospitals formerly operated by the Central Government have been passed on to the regional governments as well. These have been partially refunded later that year (end of 2003) by the State Budget.

I.3.3. Health insurance funds

Healthcare in the Czech Republic is provided on the basis of statutory social health insurance. The health insurance funds are relatively independent bodies, though public entities (as current legislation prohibits private provision of statutory health insurance), responsible for entering into contracts with healthcare providers in order to fulfil their main responsibility, which is to ensure access to needed health services for their policyholders. There are 9 health insurance companies currently operating in the Czech Republic. The largest one is the General Health Insurance Company (GHIC) with a market share of 64.3% of all people in the system of health insurance in 2005. Initially, the GHIC was established as a "default fund" with which the entire population was enrolled. Membership to any of the existing 9 insurance companies is open and each citizen is authorized to switch once a year. All insurers offer a standard healthcare insurance product, as the product differentiation is very limited

due to a vague definition of social health insurance coverage given by the law which provides for coverage for nearly all health services (some insurers offer extras, e.g. in the form of vaccinations for flu, discounts for health clubs or a bonus for the clients with no claims in a given year).

Healthcare facilities enter into direct contract with GHIC and the branch health insurance companies. In theory, contracting with care providers is selective. However, there has been an important limitation to this principle imposed by the Health Ministry's decree published in 2001 and stating the form and properties of a standard contract to which contractual parties were limited. Contracts that were signed following this decree were generally for a five-year period. Most of the contracts thus had to expire by the end of June 2006, but extensions until end of 2007 were signed in vast majority of cases. After the change of the Ministers in September 2006, a new decree has been prepared and is effective since 1 January, 2007.

In accordance with health insurance legislation, there are regular (currently annual) negotiations between health insurance companies and health service providers (hospital associations, hospitals and private physicians). These bodies negotiate various issues: the range of services to be covered under the compulsory health insurance system as well as the number of reimbursement points per service in the fee-for-service payment schedule; the monetary value of the points used to determine actual reimbursement; conditions and limitations for delivering care in major sectors of healthcare. The values of points and the amount of healthcare paid for by health insurance are set during negotiations between representatives of the GHIC and other health insurers and the appropriate professional associations of providers acting as the representatives of contractual healthcare facilities. The Ministry of Health then evaluates the results of such negotiations as to their compliance with legal norms and public interests. If it finds that they comply, the results are binding for healthcare facilities and insurance funds. The government is also entitled to make the necessary decisions if no agreement is reached.

I.3.4. Healthcare facilities

There are currently more than 27,000 healthcare providers in the Czech Republic, thereof 195 hospitals. The network of healthcare providers in 2005 is described in the table below:

Table 8: General survey of health establishments (2004)

Type of establishment	Establishments	Physicians[1] (WTE)	PWPQ (WTE)	Beds	Places
Acute Care Hospitals (in- and out-patient care)	195	16,495	57,549	65,022	634
Specialised therapeutic institutes	247	1,519	7,975	48,109	15
institutes for long-term patients	73	324	2 097	7 345	4
institutes for TB & respiratory dis. for adults	9	44	225	987	-
psychiatric institutes for adults	17	496	2,979	9,583	-
rehabilitation institutes for adults	6	48	250	990	-
other special therapeutic institutes for adults	12	142	603	1 710	-
psychiatric institutes for children	3	14	109	320	-
other special therapeutic institutes for children	9	26	136	727	-
balneologic institutes for adults	79	324	1,159	24,428	-
balneologic institutes for children	5	13	103	807	-
convalescent homes	10	5	60	734	-
Hospice	13	22	140	335	-
Other	11	61	114	188	11
Independent establishments of out-patient care	23,863	21,832	29,469	x	437
policlinics, joint out-patient establishments	200	1,480	2,613	x	16
health service centres	142	412	692	x	26
general practitioners	13,174	13,557	12,916	x	-
for adults	4,484	4,541	4,303	x	-
for children and adolescents	2,095	2,081	2,003	x	-
practical independent dentists	5,414	5,823	5,391	x	-
practical independent gynaecologists	1,181	1,113	1,220	x	3
independent specialists	6,349	6,019	6,054	x	52
Other	3,991	364	7,194	x	340
Special health establishments	472	672	3,983	x	6,083
institutes for infants & homes for children	37	33	923	x	2,027
day clinics & centres for children	46	15	236	x	1,556
créches & other establishments for children	54	-	235	x	1,671
day clinics for adults	39	54	99	x	671
medical transport & emergency service	275	562	2,411	x	-
Other	21	8	78	x	158
Establishments of pharmaceutical service[2]	2,646	-	4,735	x	X
pharmacies incl. detached dep. of drug distribution	2,451	-	4,624	x	X
medical device dispensaries	193	-	111	x	X
other	2			x	X
Hygienic service	30	233	1,028	x	X
Other	35	51	23	x	X
Health establishments - total	27,488	40,802	104,761	113 131	7,169

Source: UZIS, 2005
Notes: 1 Incl. dentists; 2 Incl. detached units
WTE – whole time equivalent
PWPQ – paramedical workers with professional qualifications

With respect to the ownership structure, the out-patient care establishments are mostly private, although public hospitals do also provide out-patient care, as there is no legal split between in and outpatient care. Private establishments employed 78% of all physicians.

Acute care hospitals (mostly public, for the most part operated by MoH or by regional governments). By the end of the year 2005, there were 195 hospitals in the CR, with 65,022 beds, of which 2,173 were newborns' cots and 6,738 long-term care beds. The hospital bed fund diminished in 2005 by only 0.7%.

Following the changes in the healthcare sector in the first half of the 90s, a new system of home care, based on private care providers, has been established. It is a supplement to standard out-patient care, provided in the homes of the clients. Before its introduction in the 90s, patients requiring regular medical checks or treatments, though only in a limited scope during a day, were often placed in a long-term care facility or otherwise institutionalized. Many of them were hospitalized also due to social reasons, medical reasons playing a minor role. Development of day care centres and other social services providing care in the homes of their clients in the 90s demonstrated the need for a health services provision on a regular daily basis outside of in-patient establishments. Medical services provided by home care agencies are indicated by general practitioners and covered by the social health insurance. They comprise health services as redressements, application of injections, nursing care, etc., often related with diagnoses such as diabetes or other chronic conditions or follow up treatment after a hospitalization. Home care services are provided by specialized nurses. It is important to note that home care does not include social care connected with independent living services, such as helping out with household activities, preparation of food, etc. Based on practical experiences, the demand for home care services still exceeds the supply in some places in the Czech Republic. With the ongoing process of population ageing, the home care has an important potential for further development.

I.3.5.   Other institutions

Chambers & Trade Unions

- ➢ The Czech Chamber of Physicians
- ➢ The Czech Chamber of Dentists
- ➢ The Czech Chamber of Pharmacists

Membership in a chamber is compulsory for every doctor who works in medical and preventive care, for every professional who works as a dentist and for every pharmacist who works in a pharmacy.

The most significant healthcare trade-union organizations in the Czech Republic include the Union for Healthcare and Social Care, the Medical Union Club – Association of Czech Doctors and the Professional Sector Union of Healthcare Staff.

Associations

There are numerous associations of medical professionals segmented according to specialization and covered by the umbrella of the **Czech Medical Society of Jan Evangelista Purkyně**.

The Union of Heath Insurance Funds (SZP ČR) represents the interests of 8 branch (employer based) insurers in negotiations with the MoH, providers and other stakeholders. Note that the GHIC is not a member of SZP ČR but 'has' its own Association, which was recently joined by the one remaining branch insurer.

The Association of Czech and Moravian Hospitals represents the regional and private hospitals in the country.

The Union of Hospitals of the Czech Republic represents the large teaching hospitals directly subordinate to MoH.

The Association of Wholesale Distributors of Drugs enjoys a significant position among drug suppliers, catering to 70% of the market. It represents its members in negotiations with state administration, the Czech Parliament and other institutions involved in the field.

Patient associations: There is a number of patient advocacy groups representing patients, especially those suffering from chronic conditions and requiring expensive care and drugs (diabetes, renal

dialysis, Alzheimer, haemophiliacs, etc.). There is also one umbrella association of most of the patients' organizations: Koalice pro zdraví.

I.4. The ownership and financing structure of the healthcare system

Ownership structure

While the ownership structure of out-patient care and the pharmacy sector is well defined within the private sector, with the majority of consolidation occurring in pharmacies, the status of hospitals remains to be clarified. Till today, vast majority of in-patient care facilities are publicly owned.

According to the statistics, out of the total 195 hospitals, only 19 (27% of total beds) are directly administered by the Ministry of Health, 52 (36% of total beds) are administered by regional offices, 23 (7% of beds) by city or municipality and 95 (27% of total beds) are "private". Private hospitals were established by physical persons or other legal bodies, including churches; however, they also include hospitals wholly owned by the regions that have converted their legal status from a budgetary organization into companies organized under Commercial Code. Thus, the label "private" used by the UZIS should be interpreted with caution. Hospitals outside the sector of the Ministry of Health, meaning those founded by other central government institutions, have only less than 3% of the total hospital bed fund.

On 1 January 2003, district offices were abolished and 82 hospitals with 32,021 beds formerly operated by the district offices were transferred to regional governments, which has led to the single biggest political controversy over the healthcare system since 1989. Following the transfer of the hospitals to regions, some of regional governments have decided to incorporate their newly gained hospitals, legally organized as "budgetary organizations," into joint stock or limited liability companies. The main reason behind these decisions is the unsuitability of a budgetary organization as a legal form to run such organisation as a large hospital (accountability, transparency and managerial responsibility is quite weak in budgetary organizations, according to experts). Also, chronically deficit hospitals' budgets pose an important burden on regional budgets. Such intentions have nevertheless provoked a hostile reaction at the level of Central Government who successfully opposed the incorporation of further hospitals through a legislative ban enacted by the Czech Parliament. Also, a law was proposed, mandating the re-conversion of incorporated hospitals into a newly proposed non-profit legal status. The law would de facto put the regional hospital networks back under MoH control. The Senate and the President of the country both vetoed the law, but the presidential veto was overruled. Finally, the Constitutional Court has decided just shortly before the act entered into effect that parts of it were unconstitutional. The decision has left a theoretical possibility of existence of legal form of non-profit public hospitals, however the regions are no more obliged to transform all their hospitals into this form. Currently, local governments in regions continue in transforming the legal status of their hospitals, even regions that were previously reluctant, start to take actions. The change of legal status does not , however, lead to a change in ownership structure. Only at the end of 2006, two of the regions started the process of privatization of some of their smaller hospitals. Experiences with privatised hospitals or rented management of hospitals are thus not yet too big in the Czech Republic.

Financing structure

Since 1993, the healthcare system in the Czech Republic has been insurance based. At present, nine health insurance funds operate in the system. The system is based on solidarity and equity. Finances flow from contributions of employed individuals (4.5% of the gross salary), employers (9% of gross salary) and the State. There are separate rules for the self-employed, requiring a 13.5% contribution based on a separate assessment base with a minimum contribution and with a cap on a maximum contribution. No cap is applied to contributions of the employed individuals. The State contributes into the system on behalf of 'state insurees', who are basically people without taxable income, including children and dependants up to 26 years of age, students, retired individuals, women on maternity leave, the unemployed, those receiving social benefits, and prisoners. Out of the total population, the State pays insurance for about 56% of population.

According to statistics provided by the Ministries of Health and Finance and the Czech Statistical Office, the absolute costs of healthcare are continuously growing, with stable proportions between the basic sources of financing: social health insurance, additional public resources (State and regional budgets, primarily capital investments), and private direct expenses of the population. The costs of healthcare have been generally growing faster than average consumer prices. The share of public resources on the financing structure of health sector is approximately 89%, with 79% being social health insurance and 11.3% other public budgets, while private expenditures of individuals represent 11.3% of all expenditures in the sector (data for 2005, source UZIS, 2006a).

In 2005, the average per capita public health expenditure was CZK 18,149 (ca. EUR 609) and the average per capita private health expenditure was CZK 2,668 (ca. EUR 90). The total volume of expenditures on health was about CZK 213,049 millions (EUR 7,668 million) in 2005, representing 7.17% GDP (UZIS, 2006b).

Table 9: Total healthcare expenditure 1995-2005

	1995	2000	2001	2002	2003	2004	2005
Total expenditure (EUR million)	2,960	3,984	4,657	5,469	6,030	6,216	7,239
Total expenditure per capita (EUR)	286	388	455	536	591	609	706
Total expenditure to GDP (%)[1]	6.86	6.48	6.75	7.02	7.35	7.12	7.20

Source: MoH, UZIS, CZSO, UZIS (2006a)
Note: Until 2002: expenditures of other sectors (except Health) are not included
*   GDP in current prices*

[1] Proportion in GDP after revision of the 1995 – 2005 national accounts, CZSO 30 June, 2006

Table 10: Source of funds in the Czech healthcare 1995-2005

Expenditure on health services by sources of financing
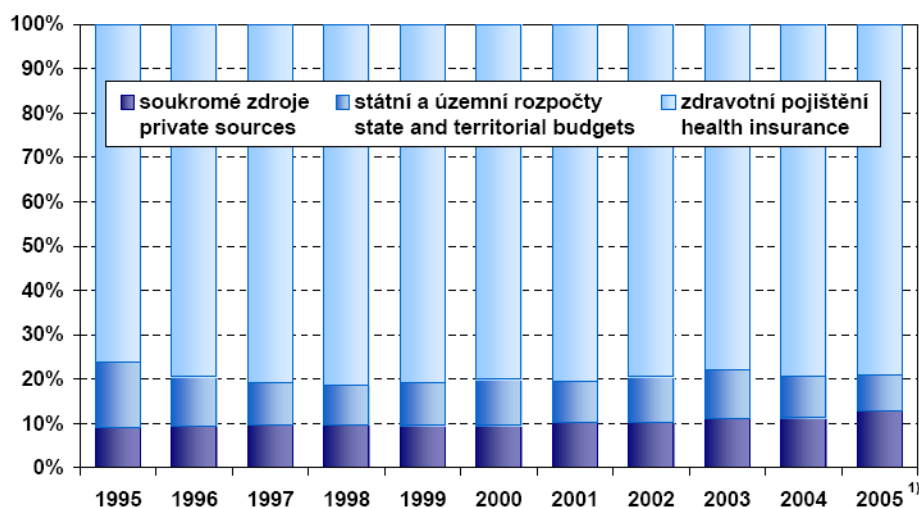
[1] Předběžné údaje   [1] Preliminary data

Source: UZIS, 2006

I.5. Citizens/businesses/civil organisations

The Council of Economic and Social Agreement

The **Council of Economic and Social Agreement** of the Czech Republic was established as an institutionalized platform for a tripartite social dialogue between the government, trade unions and employers. The Council is a joint voluntary negotiating and initiative institution including representatives from the government, trade unions and employers working to achieve an agreement in essential issues of economic and social development. Together with government representatives, social partners take an active role in formulating legal standards and strengthening the social dialogue. The Plenary Session of the Council of the Economic and Social Agreement of the Czech Republic is the top organ of this tripartite body, consisting of 8 government representatives, 7 trade union representatives and 7 employer representatives.

NGOs

With respect to the 2006 general elections, several NGOs came up with various programs. The summary of activities was provided at the web portal Econnect (www.ecn.cz) (also an NGO), which monitors activities of other NGOs. For instance, the NGO *Zeleny kruh* prepared an evaluation of the voting of MPs during the last four years with the focus on environmental issues; NGO *Nesehnutí* prepared a series of lectures on human rights and on equal representation of men and women in politics; *Agora Central Europe* prepared in cooperation with daily *Lidové Noviny* a series of pre-election debates helping citizens to answer to the question "Who to vote for?"; NGO *EkoList* prepared provided analysis and news on the attitudes to ecological issues of political parties; *Fórum dárců* devoted its activities to mapping the attitude of political parties to the NGO and their support; several new portals appealed to take part on elections and etc.

I.6. Recent policy and institutional reforms

Government

I.6.1. Public administration reform

From 2001 to 2003, state administration underwent a major reform. The sphere of action, meaning competences and institutional functions, was to a large extent shifted from the central administration to the regional and local administration. Altogether 2,641 organisations were dislocated from various ministries to the regions, out of that about 2,400 were from the Ministry of Education during the first phase of the reforms in 2001. During the second wave of reforms in 2002, another 551 organisations were shifted to the competence of Regional Authorities from the former District Authorities, out of which 50% constituted organisations providing social services. During this phase of reform, 13,000 posts were moved from the state administration bodies, especially the District Authorities, to municipalities and an additional two thousand posts to regions. Hence, the regions mainly took over the constitutional functions of the district authorities while municipalities took over the administration functions.

Seventy-three District Authorities were abolished as of 1 January 2003 and most of their responsibilities were transferred to the 205 municipalities with extended powers (see section I.2). The reform thus led to a lower dependence of regional policy making on the central government. Regions and municipalities cannot be forced to co-ordinate their targets and priorities with the central government, but they can be effectively motivated.

In particular, the greatest shift of competences took place in the area of education. The competences were shifted from the central to the regional level. At the central level, only about 100 schools, primarily religious and private schools were retained.

Regulatory Reform

The regulatory reform consists of a package of changes intended to lead to "higher quality" regulation, in other words to increase the performance, cost efficiency and quality of laws, directives, and resolutions, among other things. The areas of regulation can be split into three categories:

➢ Economic regulation, which has a direct impact on market players (e.g. price regulation, competition, etc.). The reform aims to abolish the unnecessary barriers which hinder market competition and innovations, often through "deregulation," and to improve the regulatory framework in general.

➢ Social regulation, which protects public interest (e.g. health, safety, environment, etc.). One of the reform measures is to question the necessity of regulation and possibly to propose other alternative measures as solutions, such as market incentives and targeted instruments.

➢ Administrative regulation, which concerns bureaucracy (official procedures, required paper forms and documents, etc.). The reform should lead to the simplification of bureaucratic processes, the elimination of unnecessary formal requirements (documentation, paper forms, etc.), and to the greater transparency of government processes.

The major methods of regulatory reform are Regulatory Impact Assessment, consultations with impact groups in the process of preparation of regulations, the support of alternative measures, the establishment of institutional structures for quality regulation, or even deregulation.

I.6.2.   Central State Administration Reform

In Resolution No. 237, passed on 17 March 2004, the Government approved the overall strategic paper entitled "Approach to Central State Administration Modernisation and Reform," which launched the implementation of the Central State Administration Reform in the Czech Republic.

The aim of reform is to ensure the central state administration's ability to better enforce the law and to provide better quality and more effective services to the Government and society. Economic effectiveness is to be reached through the introduction of systematic use of public finance cost-benefit analysis. The reform should also support the wider use of modern technologies and managerial techniques and enhance horizontal co-ordination and communication among central state administration authorities.

In particular *Project C.3 E-government* is part of the quality improvement of the central state administration as well. eGovernment tools should support the modernisation of the central state administration. The aim of e-government implementation is to enable citizens and businesses to simply and quickly communicate with administration authorities on all levels of public administration.

Time framework and outputs:

1. Preparation of project specification and launch of the second phase of the Portal of the Public Administration - until 31 December 2004 (it was accomplished)
2. Creation of a basic exchange format for communication between public administration authorities - until 31 December 2004 (it remains questionable)
3. Implementation of basic electronic on-line public services through the Portal of the Public Administration - until 31 December 2005 (it is partially accomplished)
4. Implementation of a basic exchange format for communication between public administration authorities - until 31 December 2006 (legislative changes are required, it is to be delayed)
5. Creation of a basic exchange format for communication between citizens and public administration authorities - 2004 to 2007 (it is delayed by a minimum of two years)

Responsible authority for the mentioned reform is the Office of the Government.

Further details on other projects and measures which are part of the Central State Administration reform are to be found in Annex 2.

Healthcare

I.6.3. Health reform measures since 2000

In 2000, the health insurance companies set up a Centre for International Reimbursements of Healthcare Services, as an association of legal persons, provided in connection with the free movement of persons in the EU. The web pages of the centre (www.cmu.cz) offer important information both for the citizens of other countries and those of the Czech Republic. This web site publishes documents related to provisions of healthcare in other EU countries (Regulations No. 1408/71 and No. 574/72), rulings of the Court of Justice, international agreements on social security and a list of agreements on the provision of healthcare.

Two statutes enacted in 2004 in promotion of EU accession are important for the coordination of Czech legal norms with EU standards. Listed below, they established the rules for acquisition and recognition of professional qualifications in healthcare occupations: Act No. 95/2004 Coll., on the conditions for acquiring and recognizing qualifications for performance of medical occupations of physician, dentist, and pharmacist; and Act No. 96/2004 Coll., on the conditions for acquiring and recognizing qualifications for performance of non-medical occupations in healthcare and for the execution of activities related to the provision of healthcare (Act on Non-medical Occupations in Healthcare). The preparation and discussion of these two statutes took more than four years. Disputes arose due to different interests of the various healthcare occupations, resulting in the adoption of two acts, one for medical occupations and pharmacists, and one for non-medical occupations.

Following the Biennial Cooperation Agreement between the Czech Republic and the WHO Regional Office for Europe, a Review of Health Promotion Policy and Infrastructures in the Czech Republic was conducted in 2002–2004. Its results were a critical reflection on the country's development with regards to health policy. In addition, the Review of Health Promotion Policy and Infrastructures in the Czech Republic offered suggestions for developing, designing and implementing health promotion policy in the future.

In 2003–2004, a political consensus was reached on the reform of the risk compensation scheme among the nine health insurance companies. Since the introduction of social health insurance, allocation of collected contributions had not appropriately reflected differences in morbidity structures among those insured by the health insurance companies. As the branch insurers used to have more favourable insuree structure in terms of morbidity (they had on average younger population insured with them) than the GHIC, the situation had led to growing surpluses of the branch insurance companies and, at the same time, to a growing loss of the GHIC. The at that time existing risk compensation system reallocated a mere 60% of collected contributions among insurers and acknowledged only two demographic age groups: people below the age of 60 and people above the age of 60. On contrary, the current risk compensation scheme is based on sex and age categorised among 18 age groups. It also provides for the compensation of "high-cost insurees" (who are defined by a multiple of average system's cost per adjusted insured) by reimbursing 80% of healthcare costs incurred above the established level. The transitional period between the two systems, originally scheduled to last 2 years, was shortened and the new risk-adjustment mechanism thus has fully applied since 1 April 2006.

Despite absence of a well-articulated healthcare reform proposal by the MoH (see below), there were numerous legislative initiatives proposed in 2004-2005 and adopted in early 2006 that attempted to strengthen the direct control of the Ministry of Health over health insurers. These initiatives then allowed the MoH[15] to effectively assume control over the largest insurer, GHIC, and to reduce the semi-autonomy of the branch insurers by subordinating them to administrative control should they show signs of the very ambiguously defined "non-observance of public interest". In addition, the Minister of Health would control acute care provision and payments setting. The highly controversial nature of the legislation as well as the "covert" nature of legislative process (the legal acts were proposed as legislative initiative by members of the Parliament, thus avoiding the established legislative process) provoked vigorous opposition from the main opposition party of that time, the Civic Democrats, as well as from the affected stakeholders, including The Association of Czech and

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[15] During the tenure of Mr. David Rath

Moravian Hospitals, The Union of Patients of the Czech Republic and The Union of Health Insurance Funds of the Czech Republic.

To strengthen financial base of the healthcare system, additional funding from the State budget was proposed and secured through an unprecedented increase in contributions of the State to the social health insurance system on behalf of the "state insurees" in the first half of 2006. This increased the revenue base of the health insurance by about 6% alone. Furthermore, there was an additional injection of funding into the health insurance system through a purchase of the health insurance companies' receivables by the CKA, and a debt reduction by a special State subsidy for the teaching hospitals directly managed by the MoH. Regardless, these efforts have not prevented the interest groups affected by legislative changes, including ministerial decrees, from protesting.

After the election in June 2006, a new Minister of Health came to the office in September 2006. The current government is formed on the basis of a coalition agreement, which includes the following main principles in the field of healthcare:

➢ Maintaining the solidarity in health insurance financing
➢ Strengthening the role of patient in the healthcare system on the principle of true solidarity among the healthy and the ill
➢ Equal competition of healthcare providers
➢ Transformation of health insurers and the scope of health insurance
➢ Transparent and effective drugs and medical devices reimbursement

At the same time the current administration steps back from the previous attempts to get the State more directly involved in the organization of health insurance and direct management and provision of health services.

II. SUPPORTIVE BUILDING BLOCKS TO E-GOVERNMENT/E-HEALTH DEVELOPMENTS – DESCRIPTION, THEIR STATE AND DYNAMICS.

II.1 The institutional structures, major actors and resources and funding

II.1.1 Main institutions ensuring eGovernment and eHealth services

eGovernment

In the Czech Republic there is no central institution responsible for the overall implementation of eGovernment services. Electronic services of the public administration are implemented in parallel with the traditional services (provided in paper form) by the relevant administrations. In general, each administration authority, starting from central administration authorities and ending with municipalities, is required to operate electronic registry.[16] The possibility to receive documents in electronic form via electronic registry is then considered as the provision of eGovernment services in the Czech Republic. However, there are legislative barriers which do not give the same equal status to the electronic and paper documents which consequently hinder the extensive use of electronic documents at the public administration.

In 2003, the Ministry of Informatics was set up in the Czech Republic, according to the Competence Act, as the central authority of public administration for information and communication technology, electronic communications and postal services, with the exception of matters in the competence of Czech Telecommunications Office, which acts as an independent regulator. The Ministry of Informatics co-ordinates the development of eGovernment in the Czech Republic. Among the priorities of the Ministry of Informatics is equal competition in the telecommunications market, the development of e-commerce and support to computer literacy in the Czech Republic. The Ministry represents the Czech Republic in EU bodies and international organisations in issues of electronic communications, postal services and the information society. The Ministry of Informatics is responsible for following EU programmes: the IDA (Interchange of Data between Administrations) program, the eContent programme, eTEN programme and for the Safer Internet Action Plan in the Czech Republic.[17]

Despite the above mentioned role of the Ministry we would conclude that except for the operation of the Portal of the Public Administration, the Ministry of Informatics acts mostly as a marketing propagator of electronic communication, as monitoring body of eGovernment issues.

The issue of informatics and eGovernment services implementation is clearly cross-sectional and "superdepartmental". However, the Ministry of Informatics does not possess on this any more competences than other ministries, including in the implementation of ICT; it is only one of their partners. Consequently, it can not manage, coordinate or directly be involved in individual eGovernment projects. Each ministry individually implements its own eGovernment applications with varying intensity. If the Ministry intends to act at least as an involved partner in one of the eGovernment projects, it has to persuade the majority of government members. Thus, even though the Ministry of Informatics act as a coordinator of certain inter-ministerial projects, its relative position is very weak. In other words, one of the few instruments that the Ministry of Informatics can use to influence the other ministries are the technical norms, which it can publish within the framework of information system standards of public administration and subsequently enforce through its comments in the so called "inter-ministerial preliminary proceedings". The Minister of Informatics however has only one vote at its disposal in government proceedings.

A similar relation exists between the Ministry of Informatics and regional self-governing units such as regions or municipalities. Most competences over these units are in fact enforced by the Ministry of the Interior. The Ministry of Informatics can only enforce its influence by means of information

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[16] At present, the electronic registry is basically an email box of the given public administration authority.
[17] For more details, see the part II.2.2

system standards of public administration, which entail only general technologically neutral requirements for the applications administered by the relevant regional self-governing unit.

The Ministry of Informatics faces a similar position also in respect of promotion and implementation of ICT policies. It does not possess competences to independently make a decision about implementation of selected ICT policies. Firstly, the ministry has to persuade other departments at the government level that the policy proposed by the Ministry of Informatics is the right choice. Then, the government has to approve this policy. The Ministry of Informatics has not been assigned a specified budget: for each individual ICT policy or program the government has to approve and set apart ad hoc financial resources in the state budget.

Following recent developments and the establishment of the new government in January 2007, it is likely, that the Ministry of Informatics itself will be abolished and its powers and responsibilities will be attributed to the Ministry of Interior and other respective state authorities, as further indicated in the study.

In the Czech Republic, central state administration authorities are primarily ministries with a member of the government at their head. Further central state administration authorities in the Czech Republic are:

- The Czech Statistical Office,
- The Czech Office for Surveying, Mapping and Cadastre,
- The Czech Mining Bureau,
- The Industrial Property Office,
- The Office for the Protection of Competition,
- The Administration of the State Material Reserves,
- The State Office for Nuclear Safety,
- The Czech Securities Commission,
- The National Security Authority,
- The Energy Regulatory Office,
- The Office of the Government of the Czech Republic,
- The Czech Telecommunications Office.

Although factors such as the lack of political interest in the past and organisational resistance to change in the public administration have certainly hindered eGovernment development in the Czech Republic, lack of adequate legislation has been the major barrier. The regions and municipalities, in particular, have only a very limited scope in promoting eGovernment, because the legislative background does not allow them to actively use electronic forms of documents. Even though, at the level of municipalities and regions there exist ca. 520 various submissions in administrative procedure, only 10 transactions can be performed without problems in the electronic form. Furthermore, the majority of these procedures are executed in the framework of delegated powers, where the procedures of compliance are strictly set from the central administration bodies. In other words, the self-governing units cannot in the majority of cases make the decision with respect to the electronic execution of the given issues.

eGovernment Financing

The state budget finances the above-mentioned institutions and their projects, with a budget chapter devoted to each institution. Regrettably, there is no enumeration of eGovernment-related costs in the public budget, nor can it be calculated, since the state budget does not highlight ICT items. The state budget includes the item "purchases", which contains commodities as well as services without any particular specification of their purpose, and consequently does not offer the possibility to distinguish the financial means used for ICT. This problem is compounded by the fact that the administrators of particular state budget chapters spend the financial resources from the state budget on eGovernment independently, as there is no coordinated realisation of eGovernment projects, including the purchase of ICT technologies. There is a similar situation in the regional self-governing units as well.

The financing of particular eGovernment projects can also be ensured in the form of co-financing from the EU structural funds and other projects aimed at supporting eGovernment, such as eTEN or eContent*plus*.

A number of institutions expect beneficial results from future PPP projects. However, it is rather premature to evaluate the effect of eGovernment financing, since Act No. 139/2006 Coll. on concession contracts (Concession Act), which should enable the realisation of these projects, became effective only as of 4 April 2006.

eHealth

With respect to eHealth solutions, the supreme administrative body is the MoH (although in recent years it did not carry out its role, together with its responsibilities and duties in eHealth well - see the next chapter). One of the directly controlled (subordinated) organizations of the MoH is UZIS (Institute for Health Information and Statistics), which is responsible for running statistical databases, including data collecting and processing. Another directly controlled organization of the MoH is responsible for running and maintaining the various medical registrars (though many of them are not working well and it is often mentioned they don't fulfil their primary aims).

The eHealth agenda is overseen by the Department of Informatics, which is a subordinate department to the First Deputy Minister. However, due to the extremely high "turnaround" in key ministerial positions in past eight years and the inconsistent attitudes of successive ministers towards eHealth concepts, funding for projects from the State budget has markedly diminished after 2004. For the reasons stated above, the Ministry of Health has failed to prepare a separate Operational Programme for Health in the programming period 2004-2006 and thus secure sufficient EU funding for priority eHealth projects. When preparing the programming period 2004-2006, healthcare sector in general was not viewed as a priority. Nevertheless, some eHealth projects were financed from PHARE or received funding from the Transition Facility projects. At the same time, some of eHealth projects have received funding from health insurers, most notably GHIC.

For the next programming period 2007-2013, there will not be a separate operational program either, but it is intended to include eHealth under other operational programs aiming at specific priorities. The current National Strategic Development Framework mentions eHealth as a potential field for development.

II.1.2 Other central government ministries and agencies

Involvement in the area of departmental projects.

Supreme Audit Office

The Supreme Audit Office (SAO) is an independent institution that has responsibility for auditing the management of public finances and state property.

Office for Personal Data Protection

The Office for Personal Data Protection is an independent agency which supervises compliance with personal data legislation and deals with citizen complaints in this domain.

Association of Regions of the Czech Republic

The Association of Regions of the Czech Republic is a voluntary non-governmental organisation, whose members are regions of the Czech Republic. The principal goal of the association is to promote the interests of the regions. The general common interest of regions is the development of the area and support of the citizens needs living in the regions.

Union of Towns and Municipalities of the Czech Republic

The Union of Towns and Municipalities of the Czech Republic is a voluntary, non-political and non-governmental organisation whose regular members are the municipalities set in the Act on Municipalities. The major goal of the Union is to protect the common interests and rights of the associated municipalities in the Union (currently 2,475). 39% of them have more than 7 million inhabitants together, which constitutes about 72.5% of all the citizens of the Czech Republic. The Union is a constructive partner for the government and parliament political representation. It cooperates on the basis of proposals of legislative measures in the form of commentary upon the legal norms in the field related to regional self-government. In the Union, primarily the city mayors are active. In addition to the regular scope of employment, they also deal with the general problems of self-governing units.

II.1.3   Private sector

eGovernment

In the Czech Republic, a tight partnership between the state and private sector in respect of eGovernment does not exist. Rather the opposite is true, as a clear barrier exists between public administration and private sector.

Several minor exceptions can nevertheless be identified, such as the intention to involve the state enterprise Czech Post (which is held by the state, but is subject to private legal framework) into the relation between the state and the citizen. In particular, this stems form the fact, that the Czech Post became a subject eligible to issue secure electronic signatures based on the qualified certificate issued by accredited supplier of certificate services. Other steps in this direction concern the intention to deliver citizens certificates extracted from Information System of Public Administration (ISVS) through the Czech Post beginning from 1 January 2007.

Another supplier of digital certificate services, is First Certification Authority, Inc. owned by several shareholders, among them the CSOB bank, which offers secured electronic signature services at the counters of its branch offices. The third authorized issuer of digital certificates is eIdentity a.s..

In spite of the above-mentioned exceptions, that the lack of tighter cooperation between public administration and, for instance banks, which offer electronic banking at very high quality, is a considerable drawback for eGovernment development in the Czech Republic. Namely a range of services from public administration could be offered through the electronic banking interface which is sufficiently secured and also warrants necessary authentication. Electronic services would then not just get closer to citizens, but also extend to a wider range of citizens. However, due to the cliché that services of public administration can only be supplied at the necessary quality and security level by the public sector, it holds that private sector only scarcely cooperates with the public sector.

eHealth

Apart from the IZIP project (see below), there is at most a minimum level of private sector involvement in the area of the eHealth. Apart from the support and back office services that public institutions outsource to the private companies such as Internet Service Providers, Hardware & Software suppliers, IT related advisory services and other services providers, the services specifically attached to the eHealth are usually fully managed and operated by state entities and institutions or public institutions (such as teaching or regional hospitals or health insurers). Nevertheless, in almost all national pilot projects or regional projects that have been carried out in the domain of eHealth in the Czech Republic private companies or civic organizations were involved to some (in some cases important) degree.

IZIP (Internet Access to Patient Medical Records) is a privately owned, subsidy-based project, which is financed by the largest public health insurance company based on a long-term contract. (for more detail on IZIP please refer to section II.2.3.).So far, no PPP project has been launched within the eHealth area.

There are various ways of involving the private sector in eHealth or eGovernment projects and services. Generally, the government can expect the following benefits to arise from the cooperation with the private sector. It is possible to:

➢ Reduce bureaucracy
➢ Streamline and speed up the implementation of IT projects
➢ Save money
➢ Create a market of sufficient size to work as partners with the Government
➢ Tap the expertise, experience and creativity of the private sector

Public tenders for eHealth solutions are open to private sector bidders and NGOs.

II.1.4   EU

eGovernment

The Czech Republic has closely co-ordinated its national policy and development strategy for electronic communications, ICTs and information society with European Union policies. The leading vision of development for the European Union until 2010 was set out by the Lisbon summit. Within its framework a number of activities have also taken place in the field of the information society, in particular under the umbrella of the joint eEurope 2005 Action Plan. The new initiative following it under the name of i2010, among other things integrates the audiovisual sector. These activities are discussed in the eEurope, now i2010Advisory Group and its expert sections, where the Czech Republic participates primarily through representatives of the Ministry of Informatics.

The support from EU Structural funds is mainly directed to the support of IT infrastructure, under the Joint Regional Operational Programme (JROP). The financial resources are available from the European Regional Fund (ERDF), which primarily supported infrastructure development.[18]

eHealth

For the period 2004-2006, healthcare in general was not seen as a priority by Czech Governments. Hence, there was no financing of specific eHealth projects from the European Structural Funds. However, before joining the EU some eHealth projects were financed from PHARE program and then also from the Transition Facility projects. Currently, for the 2007-2013 programming period eHealth is seen as a potential for development by the National Strategic Development Framework.

II.1.5   Other actors operating in these fields

eGovernment

The Association for Information Society (Sdružení pro informační společnost – SPIS) – Established in March 1998 as a professional association of firms operating in the ICT industry, its principal goal is to assist in creating an information society. SPIS helps increasing awareness about the importance of modern information technologies as the basic tool for building an effective state administration, and as the necessary premise for the integration of the Czech Republic into European structures and for better competitiveness of Czech companies. The Association would like to speed up the creation of a real global information society through its activities.

Since September 1998, SPIS has been a member of EICTA – European Information & Communications Technology Industry Association, which associates national associations from most European countries. EICTA is an official spokesman of the ICT industry on the national and international level and as such it is a partner for European Union, OECD, WTO, GATT and for other institutions. SPIS is also an honorary member of APVTS (Association of Public Telecommunications Network Operators) and a member of European movement.

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[18]   Further information and data to be found in the Annex

The members of SPIS rank among the most eminent subjects operating in the Czech market of information and telecommunication technologies:

Acer, Aktis, Anect, Autocont, Aquasoft, Atcomputers, Bgs Levi, Comparex Cz, Csc Computer Sciences, Deloitte Czech Republic, Diskus, Ed´System Czech, Ernst & Young, Euro Media, Eurotel, Fujitsu Siemens Computers, Gopas, Gts Novera, Hewlett Packard, Ibm, Icz, Kpmg, Lcs International, Lexmark, Logicacmg, Mhm Computer, Microsoft, Novell, Olympus, Oracle, Pvt, Siemens Business Services, Software 602, Sun Microsystems, Triada, T-Soft, Unisys, Veletrhy Brno.

eStat.cz – efficient state – is an independent Think-Tank, which submits various concepts, legislative proposals and public strategies. Their implementation would lead to the elimination of bureaucracy, more efficient administrative procedures with the use of modern ICT technologies and eGovernment applications with greater competitiveness. Some of the conceptual policies prepared by eStat.cz are currently being implemented by the new government.

eHealth

So called "-intermediaries," i.e. non-governmental service providers, who supplement direct government channels with additional services built around citizens' needs. It is expected that a mixed economy will help provide customers with greater choice and a better customer experience, resulting in an increased uptake of e-government services in the long term. ISP, IT related service and product suppliers (programming, hardware, software, network engineering etc.) are also involved in eGovernment and eHealth in the Czech Republic, in a volume and scope in relation to the size, purpose and level of use of the respective service. Cesky Telecom as a universal IT and TELCO services provider has historically played an important role in the process of development and provision of public services.

- ➢ *The Association for Biomedical Engineering and Medical Informatics of the Czech Medical Society of Jan Evangelista Purkyně* (www.sbmili.cz) which has 141 members
- ➢ Universities and university clinics (teaching hospitals) and specialised healthcare centres
- ➢ *EuroMISE Center* (www.euromise.cz) - European Center for Medical Informatics, Statistics and Epidemiology
- ➢ Professor Roesch's Foundation (A Prague based foundation supported mainly by the Czech Telecom and software companies and hardware suppliers has engaged in a number of telemedicine projects.)

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

In general, the first important strategies in the Czech Republic were the National Telecommunications Policy and the State Information Policy, which were approved in 1999. While the government's attitude towards the National Telecommunications Policy was rather detached it rather totally embraced the very ambitious State Information Policy (see below).

After the creation of the Ministry of Informatics in 2003, a significant diversion from the initial ambitious strategic documents accepted in year 1999 took place. The two strategies were reconsidered and merged, leading to the approval of the State Information and Communications Policy in year 2004, known as eCzech 2006. In the compliance with the targets of the Lisbon process, the State Information and Telecommunications Policy is focused mainly on the implementation of eEurope 2005 goals into the national context so that the Czech Republic would meet its liabilities with respect to EU and at the same time make the maximum use of the potential of information and communication technologies. At the time of writing this report (2006), when the goals set in the State Information and Communications Policy should have been met, it can be concluded that a number of them have not been fulfilled or will not be fulfilled in the preset time schedule. For instance, we could name the following goals:

- ➢ to gradually supply executive and specialised personnel with smart cards
- ➢ to define, incorporate in legislation and consequently implement the random national identifier

- ➢ to connect all education institutions (including libraries) to internet
- ➢ to eliminate as much as possible the necessity to request documents in paper form from citizens by the public authorities, when public authorities can share documents in the electronic form
- ➢ to prepare a legislation related to rules governing the data exchange between public administration bodies and setting up the basic registers of public administration
- ➢ to use the electronic market place in all sections of public administration for all type of purchases in the price range above CZK 100 thousand (EUR 3.5 thousand).

Following the State Information and Communications Policy, the National Broadband Access Strategy and National Information Security Strategy were prepared and approved by the government in 2005, however without setting a new and clear time frame. Thus, setting up of eGovernment strategy for the next years has not been initiated so far.

The new government, which was formed in January 2007, announced that it plans to achieve a visible progress in the area of eGovernment during the next four years. The government intends to approve an act on electronic communication under which the electronic and paper documents would have equal legal status, to administer all information by interconnected system of registers and to launch so-called CzechPoints, one-stop shop service counters where people can retrieve official documents instead of visiting a number of authorities in person.

II.2.1   Concepts and policies

State Information Policy: The Road to an Information Society, approved by the Government Resolution No. 525 on 31 May 1999.

Priority areas:

1. The achievement of information literacy of all citizens,
2. The exercise of the citizen's rights to direct access to information,
3. The implementation of information technologies in the public administration's provision of services,
4. The development of a communications infrastructure for public administration,
5. Securing trustworthiness, security and order under the specific conditions of an information society,
6. The establishment of pre-requisites for the development of electronic commerce in the Czech Republic,
7. The establishment of a transparent economic environment and the public availability of information regarding the use of public financial funds,
8. The guarantee of stability and security within the information society.

National Telecommunications Policy took into account the Government Resolution No. 324 from 14 April 1999.

The main objective of the National Telecommunications Policy was to accommodate the needs of the Czech economy, to satisfy the requirements of private and legal entities and to respect state interests in securing high quality, reliable and widely available telecommunications services with an aim to integrate the Czech Republic into the global information society of the 21st century.

Priority areas:

1. The support and protection of the users of telecommunication services,

2. State actions, particularly those pertaining to readiness for EU accession and further privatisations,

3. The support of free competition and the easier access of new subjects to the telecommunications market,

4. The support of the use of telecommunication technology in emergency situations,

5. The support of full liberalisation in a transparent and non-discriminatory environment.

State Information and Communications Policy (e-Czech 2006) approved by the Government Resolution No. 265 from 24 March 2004.

Background and principles

The Road to an Information Society and National Telecommunications Policy takes into account the tight interconnection and overall convergence trend between information technologies and telecommunications and is therefore able to form one common strategic and conceptual framework.

The State Information and Telecommunications Policy is based upon past experience of successful strategies, while respecting the changes and the needs which emerged in the development of information technology, as well as social evolution, since the publication of the mentioned documents.

The State Information and Communications Policy is based on the since terminated Action Plan of the Candidate Countries eEurope+ 2003, which the Czech Republic joined during the European Council meeting in Götteborg in June, 2001.

The Action Plan eEurope+ 2003 was formally terminated at the Conference of European Ministers on Information Society in February 2004 with the issuance of the Final Report on the Progress of eEurope+ 2003. The report evaluated the progress of accessioning and associated countries in information society development in comparison to the status in EU countries.

The State Information and Telecommunications Policy is oriented primarily towards the goals set by the eEurope 2005 initiative and their application to national conditions in order to ensure that the Czech Republic meets its obligations and, at the same time, gets the maximum out of the potential of information and telecommunications technologies. The priorities of the Action Plan eEurope 2005 were not directly transposed into the State Information and Telecommunications Policy, but they were considered in relation to the current state in the Czech Republic.

The priority areas in the Czech Republic were set according to their level of importance as follows:

1. **Available and secure communications services** – includes within its scope the regulation of the electronic communications market and the cultivation of market competition, including the transposition of the new European regulatory framework of electronic communications and also the achievement of the remaining tasks of the Action Plan eEurope+ 2003 in the field of availability of basic, or "narrowband," as well as broadband communication services.

2. **Information literacy** – encompasses the issues of school informatisation, information literacy, e-learning and the digital divide problem solution.

3. **Modern public services on-line** – includes the public on-line services, mainly services of eGovernment, eProcurement and eHealth.

4. **Dynamic environment for electronic commerce** – embraces the state measures regarding legislation that corresponds to the priority area of eEurope 2005.

The focus of the State Information and Communications Policy is not a detailed elaboration of the intentions of the state in individual sectors or partial task settings with precise deadlines for its implementation. Rather, it stresses the codes and principles which the Government intends to follow in the process of further evolution of information society in the Czech Republic.

***National Broadband Access Policy – Broadband Strategy of the Czech Republic* approved by the Government Resolution No. 105 from 26 January 2005.**

The Broadband Strategy follows up on the State Information and Communication Policy and is also partly derived from the Government Program Statement. Taking into account the national and international context, the strategy states the importance of broadband internet, sets the phases of its future development in the Czech Republic and establishes some supporting measures.

The "Action Plan eEurope 2005," approved in July 2002, highlights the importance of broadband internet access in the development of both the national economies and the whole EU, and assigned a task to each member state to elaborate its own "Broadband Internet Access Strategy", hereinafter referred to only as the "Strategy".

The Strategy describes the role and the tasks of the state in supporting broadband access development, including safeguarding its institutional background, and declares its basic approach in this area. The main goal of the Strategy is to ensure that, by 2010, broadband will be used by about 50% of the population.

The Strategy envisages subsidies for the expansion of broadband access, namely within the framework of Chapter no. 338 of the Ministry of Informatics. The rules for its functioning are compatible with the EU rules for drawing structural funds, so that it could be used for co-financing purposes. In the period 2006 to 2010, the subsidy will be continuously financed from 1% of the privatisation income of the state share in Czech Telecom, which was assigned for these purposes. Subsidies will be used for, among other things, co-financing the infrastructure projects in metropolitan and local networks. In order to receive funding, the following conditions must be met: the financial participation of the district, or region, and of the implementing body on the project and the secure provision of an open access of network operators to the infrastructure. The subsidy will also finance projects in the domain of content and services for broadband access, as well as the management of infrastructure and the first year of operation. The priority is given to projects which encourage the use of broadband access among various users in the particular regions, such as the healthcare system, the educational system, the municipal authorities and commercial subjects, among others, and which secure the higher economic value of investments.

On the basis of the Strategy, the Ministry of Informatics initiated the establishment of an expert Forum for Broadband Access, which in greater detail and at the expert level deals with questions regarding broadband access, its development and its support. The Forum is an advisory body to the Ministry of Informatics. Participation in the Forum ranges from service supplier and service user experts to personalities from the public and academic sphere, including independent people. The main task of the Forum is the elaboration of the Strategy, regular preparation of the update proposals and also the provision of further recommendations and proposals for fostering broadband access in the Czech Republic. The Forum evaluates the projects from the point of view of content and makes related recommendations. The Forum monitors the overall evolution of issues regarding broadband access in the world and endeavours to transfer successful thoughts, ideas and projects to the Czech Republic.

Part of the Strategy is also an establishment of National Broadband Server, the role of which is to monitor the penetration of broadband access and inform about its availability at the territory of the Czech Republic. The Server is run by the Ministry of Informatics and its methodology and content is provided by the Forum.

On the platform of the Portal of Public Administration, a national high-speed server was created which focuses primarily on education, monitoring and benchmarking, among other things. The Ministry of Informatics finances and ensures its operation. From the methodological point of view, it is directed by the Forum for Broadband Access. The server secures monitoring and mapping of the penetration rates of broadband access in the Czech Republic and also informs about the availability of broadband access throughout the whole territory of the Czech Republic. It includes an application for the expression of interest in broadband access from end users in particular locations, satisfying the needs of demand aggregation, and educates about the importance and contribution of the high speed access and services.

In 2005, the maximum total amount of CZK 200 million (EUR 6.7 million) was split between 47 projects, 26 out of which were focused on setting up the network infrastructure, 12 on new services and applications that use high speed internet and 9 on the marketing and education.

National Information Security Strategy of the CR – *approved by the Government Resolution No. 1340 from 19 October 2005.*

The National Information Security Strategy of the CR was also developed on the basis of goals set up in the document "State Information and Telecommunications Policy – eCzech".

The National Information Security Strategy of the CR sets several goals: to increase the trust of citizens and commercial and non-commercial subjects in an information society; to improve the overall management of information security; to develop knowledge about information security; to improve international cooperation; to gather and recommend the best praxis for information security management; to secure basic human rights through the usage of information and telecommunications technologies; and to support the competitiveness of the Czech economy.

The National Information Security Strategy of the CR sets 6 priority areas in the promotion of information security in the Czech Republic:

1. The management of information security and risk management,
2. The dissemination of knowledge about information security,
3. National and international cooperation in the field of information security,
4. Usage of the best praxis in the field of information security,
5. Protection of human rights and freedoms,
6. The competitiveness of the Czech economy.

Other conceptual documents related to the development of eGovernment

In the area of education, the Government of the CR adopted Resolution No. 351/2000, or the Concept of the State Information Policy in Education, for which the Ministry of Education, Youth and Sport is responsible. Consequently, in March 2001, the Plan of Stage I of the Realisation of the State Information Policy in Education was approved by the Government Resolution No. 244, and in September 2001, the Plan of Stage II of the Implementation of the State Information Policy in Education was approved by the Government Resolution No. 904. In 2003, the updated Plan of II Stage of the Implementation of the State Information Policy in Education was approved by the Government Resolution No. 992.

Since the government was formed at the beginning of 2007, number of new policies have been prepared and their implementation is being considered. Some of new policies are further discussed in chapter IV.

Conceptual documents related to modernization of healthcare/ eHealth

As indicated in Sections I.6.3 and I.7, former governments have not issued any official conceptual documents after abandoning the previously submitted concepts following the dismissals of earlier Ministers of Health in 2004 and 2005.

The current Minister of Health[19] published a strategic reform document already before the election in June 2006 (Healthcare Reform for the Czech Republic in the 21st Century Europe[20]). This document is in principle in line with a political document published by the Civic Democrats party for the election

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[19] Tomáš Julínek
[20] http://www.healthreform.cz/content/files/en/Reform/1_Publications/EN_publikace.pdf

campaign (Modrá šance: Chtít zdraví[21]), and with the main principles as declared in the coalition agreement signed just before the end of 2006 (see Chapter I.6.3).

II.2.2   Projects and programmes

This chapter is devoted to projects, which focus on infrastructure development, eGovernment support and computer literacy. Projects supporting specific services by setting up web portals are described later in Chapter 2.5.

Informatisation of Regions Project

The process of informatisation of regional authorities was approved by the 7 March 2001, Government Resolution No. 216, and the implementation of Stage I of the project, called basic informatisation, by the Resolution No. 398 on 25 April 2001. During Stage I, resources provided by the Government were used to finance the central supply of technical, technological and other program units in the amount of ca. CZK 205 million (EUR 6 million) in 2001 and ca. CZK 41 million (EUR 1.3 million) in 2002 on the basis of Government Resolution No. 1151 of 11 November 2002. The stage of "complex informatisation" of regional authorities began after the adoption of the Government Resolution No. 267 on 18 March 2002. Through this resolution, the Government released an additional CZK 7.5 million (EUR 243 thousand) for the preparation of a feasibility study of the complex informatisation of regional authorities. This feasibility study was approved after extensive acceptance proceedings conducted by the Association of the Regions of the CR in September 2003. It was accepted as a fundamental and basic document outlining the next steps in the informatisation of regions, and especially as a basis for the delegation of assignments regarding the projects pertaining to the complex informatisation of regions. Because some parts of the feasibility study are now obsolete, an updated version, called Version 1.04, was accepted in September 2004 by the Association of Regions of the CR. The elaboration of the project "Small Integration" (see below) was also a part of the updated feasibility study, which had a substantial influence on the further progress in the informatisation of regions, particularly in the field of system integration and communication. About CZK 2 million (ca. EUR 62 thousand) was assigned to the project, which was covered by the resources of the Ministry of Interior. The first operation of the project "Small integration" is currently underway at the Regional Authority of Pilsen Region.

The progress in implementation of the informatisation of regions has been, despite the Government's commitment to the project, notably marked by the insufficiency of the financial resources. In the approved state budget for 2005, the necessary amount of CZK 50 million (EUR 1.7 million) was not set apart for the purpose of the relevant investment program of the Ministry of Interior concerning the informatisation of regions. The realised application systems, guaranteed by the centre and secured at the stage of basic informatisation, succeeded in remaining in the operational state, primarily due to the joint financial resources of regions with the support of Ministry of Informatics. Eventually, the necessary development of its functionality was secured, too. Furthermore, they were supported by the treaty on cooperation in the field of informatisation of regional authorities signed by the Ministry of Interior and the Ministry of Informatics in July 2005.

With regards to insufficient financial resources in the immediate future, the development of the realized projects of the informatisation of regions was reconsidered from the point of view of possible financial contributions from separate regions. Also, the organisational structure of the projects was clarified by updating the lists of referees from various regions and also from Ministry of Interior and Ministry of Informatics. In addition, a new proposal scheme for financing of these projects in 2006 and subsequent years was prepared in cooperation with the Ministry of Informatics.

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[21]   http://www.ods.cz/docs/publikace/modra_sance-zdravotnictvi.pdf

Implemented Application Systems within the Framework of the Project on Informatisation of Regions

The project **Electronic Portal of Regional Self-Governments – ePUSA** was established to provide basic contact information of the regional self-governing bodies for the project of Portal of the Public Administration (PPA) of the Ministry of Informatics. It followed from the March 2005 agreement between the Ministry of Informatics and the Ministry of Interior. The major outcome of the project was the introduction of web pages, which supported data sharing and data exchange between the simultaneous projects ePUSA and PPA.

In the next steps further extension of the scope of ePUSA applications were considered such as:

1. Administration of information in electronic registries which were under the competence of the Ministry of Informatics

2. Improvement of support for data input by Regional Self-Governments

3. Improvement of methodological support for Regional Self-Governments

It remains undecided whether the General Directorate of the Fire Brigade should integrate the system of the phonebook of emergency numbers with ePUSA system. The necessary functionalities of both systems which would allow this integration have already been defined.

The project **Regional and Municipal Information System (RAMIS)** inter alia became a part of the Information System for Emergency Management (ISKŘ). ISKŘ was approved by the Government in May 2005. Two working groups were set up for system management in order to participate in the resolution of issues related to relevant data gathering and the evaluation of the needs of public administration. This included the issues of emergency planning and management. The Ministry of Interior in cooperation with the Czech Statistical Office, helped to contractually secure the data supply for the needs of RAMIS system. The data have been provided by the Ministries of Finance, the Ministry of Health, the Ministry of Labour and Social Affaires and the Ministry of Education. The first solution of RAMIS is currently being implemented in the Vysočina Region.

The Regional Registration Systems (KEVIS) project allows the employees of regional authorities to work with registrations or other application projects on the common application and data platform. The centralised version of the system was launched, too.

The project **HelpDesk** is installed in thirteen regions, with the exception of the capital city Prague. However, its functionalities are used to a varying extent. It was implemented with the central financial subsidy in the Zlín Region and its current operating costs are covered by regional budgets.

The intention of the project **Administration of Data Sources and Applications – SDZA** has been above all the setting up of an instrument for updating the database of activities and tasks of the public administration authorities. Such instruments would for instance include a unified and well-defined vocabulary of terms, an inventory of all the available data for the support of implementation of tasks and for setting up links between type tasks and available information. The interconnection of outputs between SDZA and the Unified Management Structure of Key Processes of Public Administration (JSŘKP) project was also established.

The primary objective of the project **Metainformation Search System for Public Information Services (MIVS)** is to serve first and foremost as a tool for the conveyance of information from the environment of public administration authorities to citizens with internet access. It is intended to aid the public authorities in meeting their obligations regarding the publication of information about their activities, as set in Act No. 106/1999 Coll., on Free Access to Information. These achievements have been reached:

➢ a tool for the creation of structured documents was successfully designed;

➢ an additional tool was implemented for the purpose of saving and searching for information about the "Life Situation" of citizens, with an option of accessing a description of general documents from the public administration:

> ➢ public information from separate public administration authorities was centralised, which enabled authorities to provide electronic services from one source, the Portal of the Public Administration of the Ministry of Informatics.

Currently, MIVS is adjusted to fulfil the support role for the SDZA and Small Integration projects.

The major outcome of the analysis of the current status was a **Feasibility Study of the Complex Informatisation of Regions** in the updated Version 1.04. The document was approved in 2004 as one of the major inputs for the initiation of a solution for and the elaboration of the assignment of the system project of the complex informatisation of regions. Due to the fact that until now the necessary financial resources could not be secured for the development of the project (about CZK 7 million – ca. EUR 219 thousand, as set by the qualified estimate), it was necessary, according to the approved procedure, to update the study. The goal of this update is again to identify further changes in the environment of public administration and its impact on the informatisation of regions, including the impacts of changes in the competences and in the informatisation of regions from their own point of view. This new update of the feasibility study was in the stage of a public tender at the time of writing this report and was financed from the reserve fund of the Ministry of Interior.

The feasibility study Version 1.04 includes also the project **"Small Integration"**, which by its characteristics has a significant influence on the further process of the informatisation of regions, in particular in the areas of system integration and communications. Its goal is mainly to create the conditions for the transparent execution of the public administration at regional level, to be done on the basis of defined and applied standards of the environment of public administration, including the standardised division of public administration activities, the standardisation of occupation posts, the model of organisational structure and mutual links between these standards.

Analytical efforts were devoted to the analysis of links between the application systems ePUSA, SDZA and MIVS. The integration of these systems leads to compilation of unified data about "Life situations", the description of related performed activities and also to collection of the contacts to employees performing these services. The overview of activities, contacts and information about "Life situations" is made accessible to citizens via the ePUSA application, which is a web service integrated with PPA. The leading operation is currently running at the Regional Authority of Pilsen Region.

National Program for Computer Literacy

The support of computer literacy has been one of the priorities of the Ministry of Informatics. In February 2003, the Ministry initiated the National Program for Computer Literacy (NPPG) with the goal of offering public education in the basic elements of computer usage and the internet and of helping people overcome fear of new technologies.

NPPG is based on practical two hour courses, during which the participants, with the support of experienced lecturers, gradually become acquainted with the operating system of PCs, the modes of internet access, basic internet searches and with the use of email. In contrast to the specialised courses offered by commercial subjects, the National Program of Ministry of Informatics offers courses designed for the wider public and especially for the older generation without easy access to PCs and the internet. The price of a two-hour course equals to CZK 100 (ca. 3.5 EUR). The Ministry of Informatics makes a contribution of CZK 417 (ca. 14.6 EUR) for each participant of the course. Each year, the ministry selects tutors in a public tender to run the training centres and give classes.

A familiarity with modern information and telecommunication technologies is essential for employment. Unfamiliarity with IT is often one of the major causes of unemployment among the older generation, graduates and people with a lower level of education. Economists who evaluate the impact of information technology on wages conclude that, in general, people who use computers at work earn 10-15% higher wages than employees who do not. The age structure of the course participants of National Program for Computer Literacy corresponds to this data. The majority of participants are older than 40 years and most participants fall within the range of 51-60 years. Women are more active in participation, making up about 62% of all attendants. Many of the participants were signed up for the course by their employers.

In 2005, 81,573 people took part in the National Program for Computer Literacy. Since the beginning of the project in 2003, 131,861 people have participated in the program. In November 2005, 1,500 people took part in the National Program for Computer Literacy for Disabled People. The courses with the highest attendance are Basic Work with PCs (34%), Word Processors (29%) and the Internet and Email (28).

Project of Library "Internetisation" *was approved by the Government Resolution No. 877 from 15 September 2004*

The objective of the project is to allow public libraries to fulfil the requirements of the Act No. 157/2001 Coll. on the Libraries and Conditions for Operation of Public Libraries and Information Services (Act on Libraries, §8, col. 8d). Namely, it concerns the provision of public access to public information sources, to which the library has free access through the electronic communication network. Currently, the VISK program deals with this issue, which is oriented on encouraging innovation within the public librarian and information services of libraries. The establishment of a network of public libraries equipped with information points with qualified staff support as well as information technologies allows especially:

1. equal access to the information sources and networks for all citizens,

2. support of lifelong education,

3. satisfaction of the cultural needs of citizens,

4. accessibility of information from the public administration in accordance with Act No. 106/1999 Coll. on Free Access to Information.

Since the beginning of 2005, the process of connecting libraries has been underway only within the framework of the Project of Library "Internetisation," which runs under the competence of the Ministry of Informatics. The connectivity is supplied on the basis of General Contract and Basic Implementation Contract with the usage of communication infrastructure ISVS. The libraries are connected to the internet at the speed of 512/128 Kbit/s with aggregation 1:20. In libraries, which were connected to internet as of 2004, the integration to this speed is an on-going project dependent upon the technical possibilities of each location. By the end of January 2006, 1,891 libraries were connected to the internet. For the time being, 2,959 have already signed up for the project out of a total of 6,087 registered libraries.

Project eSignature to Municipalities

In 2004, the Ministry of Informatics decided to equip municipal offices and city districts with secured electronic signatures for free. The goal of the ministry was to enforce the use of electronic communication at the public authorities and thus allow them to meet their obligations derived from new legislation. It included the necessary acceptance of various submissions in electronic form, the delivery of documents to email addresses in electronic form, the issuance of administrative acts and the operation of electronic registries.

During the operation of the Project E-signature to Municipalities, which lasted over a year, altogether 1857 e-signatures were issued. The most active municipalities were in the South Bohemian Region, in the Vysočina Region and in the Central Bohemian Region. In each of these regions more than 200 electronic signatures were issued. The project was terminated on 31 July 2005.

Project Czech Point

In 2006 the project Czech Point has been initiated. Its mains goal is to build contact points with public administration for citizens. Citizens will be able to settle to various issues with the public authorities starting with excerpts from the Trade Register or Real Estate Cadastre at one point. Later the scope of provided services will be widened. On 13 March, the first Pilot Project was triggered at one city district of Prague. After the pilot operations is proven successful at altogether 35 such contact places, the project could take the nation wide dimensions and such contact points would be established at all 1,200 municipal offices throughout the Czech Republic, post office branches and other designed spots.

EU Programmes

Since 1 January 2003, the Czech Republic has been participating in the following EU programmes:

1. The IDA (Interchange of Data between Administrations) programme, which aims to improve the efficiency of the interchange of data between member states and European institutions, thereby facilitating communication between the public administration, citizens and entrepreneurs. From 2005, this programme has been followed by the IDABC programme, which also focuses on the development of modern public services for citizens and businesses and the electronic interchange of data, in order to improve co-operation between the European administrations, which is the core of the programme.

2. The eContent programme, which aims to increase the availability, accessibility, and usability of digital content in Europe and to facilitate the generation and dissemination of digital information in areas of public interest on the Community level. In 2005, the programme was followed by the new four-year eContentplus programme.

Since 1 January 2004 the Czech Republic has been part of the following programmes:

1. The eTEN programme, which complements national programmes and member states' policies in information services development, primarily in the areas of e-government, e-health, e-learning, e-inclusion, trustworthiness and security of the internet, and services for small and medium-sized enterprises.[22]

2. The Safer Internet Action Plan, which supports activities towards the elimination of illegal and harmful internet content, in particular the building of a network of hotlines, the creation of codes of conduct and the development of filtering and rating systems. In 2005, the programme was followed by the new four-year Safer Internetplus programme.

II.2.3   eHealth projects

An official declaration was made by one of the previous Governments, stressing the awareness of the use of latest ICT. It is referred to as an essential condition for the affordability and quality of healthcare and they made a commitment to actively promote them. According to these declarations, the deployment of ICT shall be viewed as a way of increasing the efficiency of the provided healthcare and of achieving a higher life quality for citizens.

The state intended to link activities related to patient identification, accessibility of health records, and interconnection and cooperation of health-care providers closely to similar activities of the EU in order to achieve maximum compatibility.

To provide public health information and services, for instance those related to healthy living, pollution status, options for health prevention, availability of a healthcare, teleconsultation, etc., the Government intended to use the same means that are used to provide other online e-government services, above all the Portal of the Public Administration.

Key tasks relating to e-health were stated as follows:

➢ To gradually replace the existing health insuree's identification cards with smart cards compatible with EU standards, according to EU schedules.

➢ To build up an information network by connecting healthcare facilities in the Czech Republic to similar establishments in the EU and enabling the sharing of public health data and the coordination of activities in life events and health emergencies by the end of 2006

➢ To roll-out a system providing public health information by the end of 2005.

These commendable plans were greatly compromised by the changes at the Ministry of Health during the past 4 years,[23] where the lack of continuity in key personnel and frequent change in policy

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[22]   For details, see the Annex.
[23]   During the 2003 – June 2006 period, there were four different Ministers of Health in the Czech Republic, which views on eHealth significantly differed.

priorities substantially hampered the implementation of important eHealth projects and even led to abandonment of some critical components. For example, the roll-out of a system providing public health information was cancelled for that moment and money originally devoted to this project were used as a part of a subsidy for teaching hospitals (these are directly subordinated organizations of the MoH) to cover partly their debts. The project of an information network among healthcare facilities did not even started as a centrally coordinated activity, so the only move forward in this area was done by individual hospitals (for details please refer to the next parts of this section).

The status quo of some of the more important projects is discussed below.

Portals

Portal.gov.cz

With respect to eHealth, the Portal of the Public Administration provides links to all health insurers, the MoH, public health institutions etc.

eHealth Projects within the Ministry of Health

As indicated above, eHealth projects within the Czech Ministry of Health enjoyed by far the highest support of the Minister in 2004. Since mid 2004, there has been much less support of ICT applications in eHealth by the MoH, not only due to lack of interest of the successive Ministers, but also due to lack of competent personnel capacities at the Ministry itself at that time. With the appointment of a new Minister of Health in fall 2005, some more ambitious projects were put on hold, for example the e-prescription pilot, the DRG rollout based on data collected and managed by the National Reference Centre, National Registrar of Healthcare Professionals, and the Public Health Portal.

The Ministry does support the development of eHealth applications on a much more limited basis through its Internal Grant Agency (IGA), which awards applied research grants based on public tenders. Telemedicine and informatics is one of the applied research topics supported in 2006-2009 period, notably in the following areas:

➢ The development of information databases for medical R&D using multi-criteria analytical methods
➢ Internet applications in medicine and medical education
➢ Medical informatics and telemedicine
➢ New imaging techniques in diagnostics
➢ Imaging technologies at the molecular level
➢ Imaging algorithms in traumatology and emergency
➢ The development of intervention radiology methods in clinical practice.

Recent projects directly supported by MoH

The Registrar of „Non-physician Professions"

➢ A registrar established in 2003 to ensure the mutual recognition of professional education within EU
➢ Data entries on all non-physician medical professionals licensed by the MoH
➢ Data publicly accessible with the exclusion of individuals' ID # and residence
➢ Operated by the National Nursing Care Center (NCO NZO) in Brno

Integration of Registrars of Healthcare Professionals

➢ Project Transition Facility accepted in June 2004, twinning with Ministry of Health, Welfare and Sports of the Netherlands

- Current registrars are fragmented, without unified structure and lack of central management. The unified registrar shall ensure the consistency of record keeping of medical professionals' professional qualifications.

- Current status: The project reached only the final stage of a preparatory phase. In December 2005 the MoH officially contracted out from the project. The official reason at that time was a change in MoH's priorities, i.e. that the MoH should 'concentrate on immediate to mid-term solutions of the financial situation in healthcare sector at that time'. Some experts say the decision was made rather due to the 'incapacity of the MoH to keep a deadline, set by the administering authority at the Ministry of Finance, for demonstrating progress in implementation'.

  Functional integrated registrar of health professionals is thus one of the issues the current administration still has to deal with and solve it out. Missing functional registrar is a barrier to the development of other eHealth projects (see below).

Establishment of a Public Health Financial Management System

- PHARE program 2002

- Within this project, the National Reference Centre (NRC) (www.nrc.ipvz.cz) was founded under the purview of the Institute for Postgraduate Medical Education of MoH (IPVZ). It was established in 2003 to facilitate the roll out of a DRG based prospective payment system. The NRC was supposed to process and evaluate both clinical data without the personal identification of the patient, as well as the cost of care data within DRGs and to use the data for facilitating reimbursements of hospitals in the entire health insurance system from 2004. The project never got to this state due to legislative obstacles and the vigorous opposition of teaching hospitals as well as resistance of many other hospitals.

- The NRC had also been a prime element in the ambitious eHealth program of the then minister and was drastically scaled down after his dismissal later that year.

- As of February 2006, the NRC was absorbed into the MoH as a separate unit within the Department of Informatics. The MoH intends to use the data for benchmarking and evaluation purposes of the directly subordinated healthcare providers, mainly teaching hospitals. (See details on the existence of two concurrent national reference centres in Chapter III.)

Improvement in the Healthcare Management System

- Transition Facility Project 2004, The project was a direct follow-up to an earlier project Establishment of a Public Health Financial Management System, funded from PHARE program.

- Objective: The improvement of the Healthcare Management System at the top and intermediate level through the implementation of objective performance indicators on quality and costs of healthcare.
- Current status: Since 2004, the project had suffered from frequent changes in organizational arrangements at the MoH and changes in political priorities. After two years of existence, in 2006, the project still had not reached the realization phase itself. Due to these reasons and with regard to the deadlines set by the European Commission, the MoH under new administration cancelled the project in fall 2006.

Project Netcards

- Financed from European program eTEN, co-financed by the MoH, participation of GHIC and hospitals engaged in the pilot study

- The project follows introduction of uniform European Health Insurance Cards (EHIC) in the EU, including the Czech Republic. It is a part of the European project eTEN.
- Objective: Electronic verification of the insurance cards via Internet. Setting up of national servers that will facilitate immediate verification of a patient's insurance card without human assistance.
- Current status: End of phase A achieved in October 2006. Selected healthcare providers are equipped with terminals to read and verify the card records of patients. Evaluators at the Final Review Meeting have recommended continuation of the project in phase B (initial deployment).
- The project is tied by the team members to the first project of chip cards in healthcare in the Czech Republic (project Mácha in 1996-1999), when almost 30 000 of GHIC's policyholders in one town (Litoměřice) were issued smart cards containing policyholder's identification and selected health information, and the local hospital together with several local general practitioners were equipped with the reader adaptor stations.

Health Insurers' eHealth projects:

IZIP Project (www.izip.cz) – Project description

IZIP (Internet Access to Patient's Healthcare Information, or medical record) is a system designed for internet access to electronic health records (EHRs). The EHR includes relevant information about patient's contact with healthcare services from regular general practitioner's visits, through dentist treatment and lab tests, to the most complicated surgeries. Since its inception, IZIP has received funding from GHIC, with a cumulative total of CZK 300 million (approx. EUR 10 million using exchange rate of 1 June 2006). The project is currently still opened only for GHIC's policyholders, as the whole project was done in an exclusive cooperation between the IZIP company and the GHIC.

Basic facts: As of March 2007, IZIP has had more than one million users[24] (GHIC policyholders), i.e. 1/6th of all insurees of the GHIC made use of IZIP and more than 6.2 million records (entries) were made in the system. It took about 2 years (2003, 2004) for the system to gather half a million records, and in 2005 it took only 3 months to gather the same amount of records. Today, more than 8,800 healthcare professionals and 5,200 healthcare providers use the IZIP system.[25]

The basic idea behind the project is that the patient himself carries information about his health status. Thus, it is the patient who has the key to his electronic medical record and a healthcare professional can access the record only upon authorization. In principle, a doctor needs patient's medical information only at a time the patient is in his office, with the only exception of emergency service.

Initially, only the policyholder has access to his electronic health file, but he or she can authorise others to view the data. The citizen himself has to activate the health record via the internet, the IZIP 'Green Line' telephone service, or with the doctor's help during a visit. This is a very distinctive feature of IZIP, which leads to a transformation of the way healthcare works: It is the citizen himself that has control over access to his health information. The security of data is currently guaranteed by a password and PIN system. The empty record can be accessed using the four-digit PIN in combination with the unique personal ID number given at birth. Citizens can then introduce a personal password as an additional requirement for data access.

Professionals from private medical offices, as well as other healthcare organisations participate in IZIP, including laboratories, pharmacies, rehabilitation clinics, and hospitals. Large institutions are also taking part – Homolka hospital, teaching hospital in Plzeň, Masaryk Oncological Institute, Imumed, Centromed Policlinic and others. Special projects are being set up, such as IZIP-DIA, which cooperates with the Czech Diabetes Society, and IZIP-COV, which cooperates with the Czech Olympic Committee.

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[24]   1 million threshold reached on January 18, 2007
[25]   IZIP press release, March 22, 2007

Healthcare professionals have to register with the system and can log in using their own password and PIN, which identifies them as professionals. They can view only the information they have been authorised to access by the citizen. Only registered and authorized professionals can update patient's record. For establishing a first-time record and for each update, professionals receive a fee from the insurance company (GHIC) to reimburse them for the extra effort. Patients themselves can make their own notes in a special section of their electronic medical file as well.

The internet health files consist of selected parts of the medical documentation held by each physician, hospital, etc. For updating records, registered healthcare professionals use their ambulatory patient record software, hospital information or the pharmacy system, which must contain a module for interoperability and upload to the central system. Records in the IZIP system contain:

➢ Anamnesis
➢ Results of examinations performed by a general practitioner or specialist, in chronological order
➢ Results of laboratory tests and examinations
➢ A list of prescribed and issued medicines and drugs
➢ X-ray scans and other images
➢ Reports on hospitalisations
➢ Vaccination history
➢ Information on other treatments, including type and location.

Further development capabilities

The ePrescription module of the system is developed, with implementation to start in late 2006. It will allow pharmacists to enter - if the patient consents - drugs sold over the counter into the records, allowing doctors to monitor the medication mix and alert their patients in case of an overdose, adverse effects from a particular drug combination and other potential risks.

The IZIP system is also intended for wide use in ambulance emergency services (EMS) in the Czech Republic. By providing EMS paramedics with access to certain parts of a patient's record, first aid can be much more appropriate and timely. Since early 2006, a pilot project has been running at the EMS in Hradec Králové. Negotiations with other EMSs are underway. Another project in the development phase is messaging by health service providers via e-mail or SMS on citizen request. Reminders will be sent, e.g., for appointments or the availability of test results.

The IZIP's plan is also to generate, based on these records, clinical and financial summaries for managers, healthcare professionals, and citizens. It is also possible to evaluate anonymous statistical data according to diagnosis, such as influenza epidemics, drug prescriptions, or proposed procedures. This can help authorities to monitor developments in the health status of the public, and to adjust public health policy accordingly.

In the future, the structure of the health records will be developed further in order to better serve citizens', as well as health professionals', needs, and also to enable more advanced statistical and clinical analyses. Plans for further development also include the introduction of smart cards and digital signatures as identification and security features.

Controversy over IZIP

While IZIP obviously improved communication between doctors with the patient, becoming an active part of healthcare leading to potential savings to the GHIC and eliminating unnecessary duplicities in laboratory tests, prescription of drugs, etc., the project itself was subject to highly negative assessments by MoH in early 2006,[26] despite positive evaluation by both its users as well as foreign experts.

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[26] during the tenure of former Minister David Rath

The IZIP project has received numerous international awards; recently it has been rated "Top 5" World's best eHealth projects by World Summit Award 2005 (WSA), among 750 ICT applications from 168 countries.

Also, Empirica, a German based ICT consulting firm, performed the Study on the Economic Impact of eHealth (eHI), comparing costs and benefits of 10 eHealth projects (including IZIP) on behalf of the EU. The conclusions of the Study have been presented at the eHealth Conference in Malaga, Spain in May 2006, with very favourable results for IZIP.

The criticism of the MoH focused both on alleged design flaws and the quite debatable award of contract and financial costs to the GHIC. Critics inside the MoH argued *inter alia that* the project has not been awarded to the IZIP company based on a competitive public tender. The last issue has been taken by the Czech Antimonopoly Office, which has fined the GHIC for violation of the Public Procurement Law in spring 2006. GHIC appealed against this verdict. By the end of 2006, no final decision in the appellation procedure was made.

Future of the IZIP project

The GHIC is prepared to open the project also for the participation of other health insurers and their policyholders. There are no technical barriers to such enlargement of IZIP utilisation, the only issue being conditions (financial) under which other insurers will be allowed to join the project.

For further development of a widespread use of IZIP, it is essential that there was a functional national registrar of healthcare professionals in place and all health services providers are equipped with electronic signature. However, none of the two conditions is currently fulfilled.

Results of Empirical Economic Analysis

The present values of estimated benefits exceeded the estimated period costs of running IZIP for the first time in 2005. It is the third full year of operation, seven years after the start of planning. Benefits are driven by utilisation, and thus start only in 2003. The benefits increase exponentially with the uptake of the service. Costs have a component connected to utilisation, about 20%, but the larger part is not. As a result, it causes net benefits rise, meaning that costs grow at a lower rate than benefits. Cumulative benefits can be expected to exceed the cumulative costs some eight years after the start of the project, in 2006. Even on the basis of relatively restrictive assumptions about future usage, the estimated annual net benefits for the overall system are expected to surpass €60 million by 2008.

Other health insurers' eHealth projects (examples):

eHealth applications by the health insurance company "Hutnická zdravotní pojišťovna" - HZP (www.hzp.cr; www.medipartner.cz)

HZP- a regional health insurer based in Ostrava (North Moravian-Silesian Region) runs a fairly developed web site www.hzp.cz offering a range of on-line and off-line services to its customers, both payers and insurees, including eAccount, e Desk and eCounter applications, a discounted eSignature for members, off-line health advice and other services. HZP runs an application akin to IZIP health records for its members.

HZP has entered into a contractual relationship with a number of out-patient care providers (general practitioners) grouped into 3 independent practice associations (IPAs), as well as two in-patient care providers, to reduce costs through managed care and to improve quality of care. The managed care program called Medipartner is run by a third party administrator, a privately owned Klient Pro Ltd.(www.klientpro.cz), which also provides data and information support through internet and web application for enrolled insurees. This includes an interesting feature of tracking of "virtual fund's" performance, providing information to all participating physicians and insurees in the managed care program on the revenues and expenditures of the participants. The IPAs have recorded significant savings to HZP throughout the observed period (2001-onwards), while increasing the remuneration of

participating general practitioners. The participating insurees have been rewarded by better quality care (scheduled visits, savings of time, less over-prescription and avoidable procedures) and bonuses.

Unlike IZIP, the Medipartner and IPA eHealth applications are fully integrated with the IT system of the HZP.

Projects of regional governments, regional hospitals or teaching hospitals

Some more active regional governments have started eHealth projects within their regions, mainly oriented at interconnecting their healthcare facilities. An example of such successful project is Královéhradecký region, where it just recently finished project of "internetization" of hospitals (i.e. interconnection via internet). The project included building of a high-speed data infrastructure connected to the web, which enables direct sharing of diagnostic pictures and laboratory results of patients among regional healthcare facilities. A similar project is being planned in the Southern Moravia region for next years.[27]

In the main hospital of Ústecký region, a project that will enable patients to make an appointment at a doctor via Internet is currently being implemented. The project is scheduled to be finished during 2007.[28]

International comparison

There are several areas in which the Czech Republic stands apart with respect to eHealth projects.

> A functioning project "IZIP" of internet based patient controlled medical records with a respectable country-wide uptake and a good potential for growth in coverage and valuable applications. IZIP has recently (May 10,2006) been rated favourably by a study on the economic impact of eHealth performed by Empirica (a German based ICT consulting firm) on behalf of the EU and recommended for replication in other EU member countries at an eHealth Conference in Malaga, Spain.

> Well-established ICT solutions with respect to claims reimbursement, insurance premiums collection and healthcare usage statistics by the health insurers based on unified data standards used by the GHIC and the MoH, and also by all the other health insurers and care providers in the country. The initial design of data interfaces used both by GHIC and MoH is conducive to a rapid development of eHealth projects should the Government so desire.

A fully functioning Centre for International Reimbursements (interstate clearing and settlement centre – CMU; see chapter II.5.11), the Czech Ministry of Health proposed establishment of a panEuropean Interstate Settlement Center.

II.3   The legal framework supporting eGovernment and eHealth applications

The Czech Republic does not have a coherent legal regulation framework specifically related to eGovernment. There exists the Act on Electronic Signature or the Act on Information Systems of Public Administration, but those are regulations, which govern issues of eGovernment only partially. The legal regulation of eGovernment services applied in the Czech Republic is dispersed in multiple general legal regulations of the Czech legislation system using a non-consistent terminology. As a consequence, eGovernment services and their legal basis are bound with countless ambiguities of interpretation and in many cases also with incompatibility in their practical implementation.

II.3.1   Act No. 227/2000 Coll., on electronic signature and on changes of some other Acts (Act on Electronic Signature)

The Act on Electronic Signature approved in 2000 implements the Directive of the European Parliament and Council No. 1999/93/EC (electronic signature principles of the European Community) into the Czech legal system. The Act thus implemented the institute of a guaranteed electronic

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[27]   Source: "Nemocnice spojuje internet", Právo, December 15, 2006; "Informační systém propojí nemocnice", Mladá fronta
[28]   Source: Article "V ústecké nemocnici se budou pacienti objednávat přes internet", ČTK, June 13, 2006

signature based on a qualified certificate issued by an accredited provider of certificate services. On the basis of an electronic signature it is possible to make operations in the field of public authority bodies.

The social demand for further PKI (Public-Key Infrastructure) services later resulted in an amendment to the Act and the introduction of time stamping to guarantee the actual time of signature and other operations. The launch of electronic marking is the main contribution of the amendment, which should lead to the proper functioning of eGovernment services. Data messages can be marked with electronic marks with similar effects as electronic signatures. Since the electronic mark is similar from a technical point of view to the guaranteed electronic signature, they are subject to similar requirements. As decreed in the Act on Electronic Signature, the condition for the use of the electronic mark is that it be based on a qualified system certificate unambiguously connecting the marking person and the electronic mark. Therefore, data messages can be marked by the electronic mark in such a way that the creation of the marks is initiated and the marking itself can be processed without the direct participation of the marking person. In contrast, the guaranteed electronic signature is created by a natural person for only one particular data message.

A qualified system certificate upon which an electronic mark is based can be defined not only for a natural person but also for a corporation or organizational state body. As the Czech legal system does not accept any other signature than the signature of a natural person, the electronic mark cannot be a signature in legal sense. The electronic mark is an object which from a functional point of view ensures the integrity of a data message and the identification of the person who has marked the message. The employment of the electronic mark has a huge potential for use in the eGovernment field.

Since, based on various legislative acts, the bodies of public authority are obliged to accept and send data messages marked with a guaranteed electronic signature based on a qualified certificate issued by an accredited provider of certificate services, the organizations are obliged to fulfil a range of security obligations. Because these obligations are fundamental and quite complicated, it is possible and appropriate to concentrate these activities in electronic registries. A registry is a specialized workplace for which it is possible to issue implementing regulations and thus create the possibility of a unified process when the required security is achieved. Above all, paragraph 11 of the Act and implementing regulation on electronic registries No. 496/2004 Coll. is relevant for electronic registries.

II.3.2 Act No. 365/2000 Coll., on information systems of public administration and on changes of some other acts

The Act on Information Systems of the Public Administration sets down the rights and obligations of the subjects related to the operation of information systems of the public administration and the resulting information systems. The information systems of the public administration are, according to the Act, perceived as a set of particular information systems designed for public administration and administered by the ministries, other administrative offices, the bodies of local governments with delegated competence and other state bodies. At the basic level, particular information systems include information which is needed for the operation of other information systems, or more precisely, for securing the administrative activities of appropriate bodies. For the operation of the information systems of the public administration, binding normative regulations of technical character are used, called standards of information systems of the public administration. The operational rules of information systems of the public administration, which are, based on the Act as amended, covered by issued standards, from 2007 will be ensured by issuing implementing regulations and guidelines. In the process of operation of information systems, the guidelines will act as recommendations of the Ministry for the execution of professional activities related to creation, development and use of information systems of the public administration according to the Act on Information Systems of the Public Administration. The main aim of the guidelines should be the provision of expert advice and the recommendation of processes for the creation of an information policy of public administration body, i.e., the specification of principles to be fulfilled when proposing, launching, operating and shutting down information systems.

From 2007, an amendment to the act will implement an institute of long-term operation of information systems; so far, the field has only been regulated by the standards of the information systems of the public administration. Such an operation process is applied by public administration bodies during the lifetime of their information systems. The content of the operation process includes the proposal, implementation, and supervision of the fulfilment and revision of the information concepts of the public administration body. The concept must specify the principles behind the proposal, launch, operation and shutdown of information systems. Furthermore, the amendment solves the issue of information systems security, which has so far only been regulated by the standards of information systems of the public administration. The operation of information systems security is interconnected with the other operation processes of public administration body. Processes of risk assessment and application of security measures are thus related to long-term operation of information systems and are integrated into information conception.

From 2008, the act will impose an obligation to make internet pages of institutions of public administration and local administration accessible to disabled people, to prevent discrimination against handicapped users in the provision of information via internet pages. Internet pages should thus be accessible to all users, e.g. to blind users or to those who can't use their upper limbs. These users have at their disposal various auxiliary technologies, e.g. voice output, Braille rows, etc. which intermediate information. For these tools to function, it is necessary that the web pages are created according to the rules and principles of web accessibility. At the same time, easily accessible web pages are not only used by the disabled people. Adjusted pages can also be used by those with less common display devices, operating system or software equipment.

In addition to the regulation of information systems of the public administration, the amendment to the act also regulates the process of receiving and sending data messages by the Portal of the Public Administration. Everybody has the right to use the portal services designed for the delivery of data messages. For this purpose an administrator of the portal operates the information service, which, after receiving the data message, delivers it without any delay to the electronic registry of a given public administration body. According to the Ministry of Informatics, the reason for the changes in the act was an effort to develop a portal which will serve citizens as a unique aggregated place of access to public administration services. A citizen should have the opportunity to electronically communicate with the public administration via a unified environment and without complicated searches for the web pages of different authorities. Unfortunately, due to the incorrect wording of the relevant amendment text as proposed by the Ministry of Informatics, the declared aim was not achieved. However, the real reason could be traced back to lack of political interest. Communication via the portal should have become a generalised practice, but it remains only one of special forms. In order to improve of this situation, amendments to at least 150 legal regulations will be necessary.

The amendment to the act also introduces an institute of issuing outputs from public administration information systems. The output is in the form of a verified document from electronically administered evidence, registers, or lists. Verified outputs can be issued by a notary, some municipalities, and a post licence holder, which in the Czech Republic is the monopolistic Česká pošta, s.p. controlled by the state. Unfortunately, the Ministry of Informatics did not attempt to introduce the electronic forms of excerpts from particular evidence, registers or lists, but only the paper form of previously issued excerpts. The new institute will therefore not result in the development of eGovernment, but in an increase in the number of places where it will be possible to get excerpts in paper form.

II.3.3   Act No. 106/1999 Coll., on free access to information

The Act on Free Access to Information is a general rule of law which ensures the right to access the information held by state bodies, local administrative bodies, and other subjects that make decisions based on legislation pertaining to the rights and obligations of the citizens and corporations. Based on the Act on Free Access to Information, these mandatory subjects are obliged to make public basic and standard information on their activities automatically so that this information is both generally accessible and accessible in its distant access form, i.e., via the internet.

As a consequence of the transposition of the Directive of the European Parliament and Council 2003/98/EC on the re-use of public sector information, an amendment to the act was approved by the Act No. 61/2006 Coll. The aim of the Directive is above all the easy and unified usage of information or documents of public sector subjects within the EU, with the help of particular criteria, which should bring together regimes of information provision in particular states and should help potential information users in searching for whole documents and particular information, including conditions of the provision of that information. The commercial exploitation of public sector information will be regulated by particular conditions of information usage. The Directive puts emphasis on the electronisation of the information provision regime. One general principle is the focus on the use of electronic tools and available formats and languages, if possible and appropriate. The member states should also ensure electronically treatable standard license contracts and their publication in digital form.

The Act on the Free Access to Information distinguishes two situations related to information that is subject to intellectual property. Firstly, the subject obliged to provide information exercises intellectual property ownership rights regarding this information. Secondly, the ownership rights are exercised by a third party.

This new element should ensure that mandatory subjects can easily, in clearly stated conditions, provide information which is subject to intellectual property. In such cases, it is pragmatic to determine the specific conditions of the provision of such information, depending on the complexity of information processing.

II.3.4   Act No. 137/2006 Coll. on public procurement

At a first glance, the Act No. 40/2004 Coll., on Public Procurement, regulating the rules of public procurement can seem to be a non-problematic rule of law, with the exception of the delivery of documents. However, it is not the case. In fact, this act makes it impossible to use electronic tools for public procurement, although these tools can reduce the costs and increase the transparency of the entire process. According to paragraph 93, the submitter can decide whether or not the applicants can submit their offers electronically, but he cannot decide that he will only accept offers submitted electronically. The submitters can thus organize electronic auctions only in such a case when all the applicants agree in advance that they will submit their offers electronically.

Based on the feedback from entrepreneurs, the government realized that current regulation of electronic public procurement is totally insufficient and it has prepared a completely new proposal of the act on public procurement, which should introduce a principle of electronisation of the submission procedure. According to the new act and in accordance with trends in public administration electronisation, it will be possible to make the submission procedure fully electronic. The chief new element will be the institute of electronic auction. During such a procedure, after the initial evaluation, it will be possible to further improve the offers via an electronic appliance, provided it is within the predetermined time period or number of auction rounds. Also, a dynamic purchasing system will be in place, which will constitute the full electronic management of common purchases. The procedure would be time constrained and open to all suppliers that fulfil the qualifying criteria and submit the initial offer in accordance with the established prerequisites. Although the new Act on Public Procurement promises the availability of eProcurement services, some experts argue that under the current proposal of the act, unless the suspicion of possible corruption is eliminated, the secure functioning of electronic tools would not be possible, because there is a high risk of manipulation with the final results of the submission procedure.

II.3.5   Other rules of law with direct impact on eGovernment

Act No. 500/2004 Coll., the Administrative Act, is a general rule of law which regulates basic process operations within the administrative procedure. This act makes it possible to make electronic submissions to administrative bodies and to electronically deliver documents from administrative bodies to recipients. In addition to this rule of law, there is a range of administrative legislation, which, at a first glance, seems to be rules of law of a material-legislative character, but almost always includes

some procedure specification. A number of such specifications demand differences in administrative procedures, meaning that effectively the universal administrative process does not exist. As a consequence, in many cases, there is a limited possibility of electronic operations, which does not comply with general rules. Either it is completely impossible to make electronic operations, or it is possible, but there are still required documents, which are by law accepted only in material form. Consequently, the citizen or entrepreneur must come to the particular office and bring the appropriate documentation, thereby reducing the contributions of electronisation.

Act No. 99/1963 Coll., the Civil Procedure Act, regulates process operations in civil justice. Under this act, only the electronic delivery of judicial documents is possible. The act No. 150/2002 Coll., the Judicial Administrative Act, makes it possible both to send submissions to administrative courts and to electronically deliver the courts' documents.

Act No. 337/1992 Coll. on Taxes and Fees Administration makes it possible to make submissions and to electronically deliver documents through the procedures related to this act.

Act No. 634/2004 Coll. on Administrative Fees exempts the operations required and realized electronically via distant access from administrative fees, when accompanied by an electronic signature based on a qualified certificate issued by an accredited provider of certificate services. This holds for the administrative fees amounting up to CZK 2,000 (ca. EUR 65). Unfortunately, this regulation is almost never used because offices often put into each electronic operation an element without an electronic character, so that the whole operation can not be done fully electronically and the administrative fee thus must be paid to the offices, which do not then lose their financial source.

Act No. 101/2000 Coll. on Personal Data Protection and on Changes of Other Acts generally regulates rights and obligations within personal data processing and sets down conditions under which the transfer of personal data to other states is realized.

Act No. 480/2004 Coll. on Certain Information Society Services generally regulates the responsibility of the provider of the information society service for the content of transferred information, the content of automatically temporarily filed information and the storage of information provided by the user.

Act No. 499/2004 Coll., on Archival Science and Documentary Service and on the Changes of Other Acts makes it possible to administer records service in electronic way. On the other hand, it still prefers the administration of records service in material form to electronic form.

II.4 The dedicated specific information and communication technologies, infrastructures

II.4.1 Infrastructure

The infrastructure of the eGovernment services in the Czech Republic is based on the project Intranet of the Public Administration, which is directed and coordinated by the Ministry of Informatics. The company ČESKÝ TELECOM, a.s. was selected to provide services for the Intranet of the Public Administration. The first phase consists of connecting the individual posts of the public administration authorities to intranet via universal connectors. The following second phase of the projects will rest on the implementation of the services in such a way that they ensure smooth data exchange and secure access to the state information data sources. The project Intranet of public administration should be finished in about two or three years.

The basic technological backgrounds of the communication infrastructure of public administration subjects are the virtual private networks offering the secure division of communicating subjects to closed user groups according to the subject-matter venue, even though they use common communication infrastructure (KI ISVS). These virtual private networks (VPN) "behave" similarly to real private networks, which are built upon a separate hardware environment.

Its basic flaw is its isolation. The user of one VPN cannot without further measures access the information sources in other VPN. Currently, the insecure environment of the internet has to be used for communication with other subjects. This isolation is in contradiction to the principles of the state information policy, according to which the sharing of information sources is one of the underlying requisites for the efficient creation of an information society.

To overcome the isolation of the virtual private networks of the subjects of public administration, there is a need to have a universal interconnecting network to which VPN subjects are connected and which will provide secure and reliable access from one network to the others under the control of the concerned parties of the public administration. This universal interconnecting network will not only allow the interconnections of these subjects to be managed, but also of other networks such as internet, EU TESTA network, etc. The role of the universal interconnecting network is performed by GovNet network. It concerns a specialised private network within the framework of KI ISVS, which secures the interconnection of VPN subjects of the public administration and other networks, given that the strict security and qualitative conditions are met. Each VPN is connected to GovNet at one connection point, through which it is possible to efficiently meet the security conditions and, when necessary, to also submit to the direct control of a given VPN owner.

The backbone network KI ISV is a digital data network using IP protocol at the third layer OSL. It allows for the creation of virtual private networks without the use of virtual circuits or tunnels. It has almost unlimited transfer capacity at its disposition, in combination with a high level of security and accessibility. The travel delay of packets in the backbone network is minimal and can be guaranteed thanks to the use of the highly efficient technology, Multiprotocol Label Switching (MPLS).

Despite the fact that access to the backbone network KI ISVS can be secured through the use of many different technologies, the most convenient and most often used is the IP connection. On the basis of IP protocols, these connections secure the unity of the whole transmission environment, ranging from LAN customers through IP connection to the environment of the backbone network. The standard LAN connection (eventually also WAN) of the public administration subjects to the KI ISVS backbone network using IP connections can be of a permanent or temporary nature. To secure a permanent connection, "fixed connections" are used. These differ primarily in the transfer speed (64Kbit/s to 155 Mbit/s), the accessibility level (Category "A" with standard accessibility, category "B" with the augmented accessibility) and in the number of VPN (basic connection allows the creation of only one VPN, while the shared connection allows up to 5 VPN). For temporary connections, the IP VPN dial-up service is used, which secures dial up connection of the end user to the relevant VPN with the transfer rate of 56 Kbit/s, 64 Kbit/s and 128 Kbits/s, depending up the type of telephone line.

II.4.2   GovNet services

Principally, GovNet services include:

1. Information sources sharing among the public administration subjects – public administration subjects communicate within the scope of KI ISVS inside of the virtual private networks, which are logically separated from each other and have similar characteristics as individual private networks built up on the technical tools dedicated for that purpose. It then exerts a positive impact on the economic feasibility and security of the data communication systems of the public administration. In some cases, however, the need to secure access from one VPN to another VPN emerges, for instance when the user connected to one VPN approaches the information source (application, database, etc.) connected to another VPN, either of the same or other subject of public administration. The role of mutual interconnection of both these VPNs is provided by the GovNet network. This connection is facilitated by GovNet under secure conditions as agreed upon by the owners of both particular VPNs.

2. Secured shared access to the internet – the shared access of public administration subjects to the internet constitutes a financially efficient and secure way of internet access for public administration. It uses a communication channel to the internet with a band width that is gradually increased

according to a continuously measured average and peak load. The whole data flow (http/https/ftp) from the internet, including emails, is directed through the antivirus protection systems. Possible penetration attempts from the internet are detected and logged using the Intrusion Detection System (IDS). The shared internet access is centrally reimbursed by the Ministry of Informatics of CR. Furthermore, the user of shared access to the internet has additional services at his disposal, such as electronic mail, hosting services, or the ability to house his application in one of the demilitarised zones of GovNet, DNS services and time synchronisation.

3. Secure electronic mail – the GovNet's electronic mail system provides the end users of public administration subjects with e-mail communication that takes place in the framework of public administration (outside of the internet environment). The users can also communicate with other EU member states and EU institutions outside of the internet environment. Certainly, communication with anybody within the internet network is also available. Subjects of public administration that do not have their own mail server can use the mail boxes located at the mail servers of GovNet (mail-storage). The mail-relay server of GovNet also allows, among other things, temporary savings of electronic mail messages in case of receiver mail server break down or delivery after its repair, as well as antivirus protection.

4. Housing and hosting applications – The information sources of subjects of public administration, for example database servers, application servers, web servers, etc., for which a high standard of accessibility, security and connection to network capacity is required can be located at hosting centres equipped with the relevant infrastructure, such as back up power sources, dust-free environment, air-conditioning, redundant communication circuits with high capacity, object protection, increased resistance of given objects from natural catastrophes and outside attacks. An application located at a hosting centre may be operated on the hardware of the provider, called server hosting, or on the hardware of a customer, called server housing. In both cases, the application owner administers the given information source locally directly from the hosting centre or via secured remote access. Part of the maintenance services connected with the server operation can be performed by the hosting centre personnel (eg. regular back ups). The subject of hosting or housing can in principle be any application ranging from simple web pages to vast information and transaction portals. The Portal of the Public Administration is a typical example of an application which was located in the hosting centre of the public administration.

5. Connectivity to TESTA network – The GovNet network intermediates communication between users belonging to the state and public administration and individuals belonging to other EU member states through the national data network of the public administration of the Czech Republic, a network with MPLS technology for KI ISVS, and the data network TESTA-II. The network TESTA secures connectivity between the subjects of public administration of EU member states and EU institutions on the "everyone with everyone" basis. It also provides access to the information systems of EU (sector projects) and other services (DNS, e-mail relay, information portal, web hosting, infrastructure of public key, help-desk, document management system for international project teams – see project CIRCA, central ftp server, etc.)

The GovNet support services are:
1. Domain Name System (DNS) service,
2. antivirus protection,
3. time synchronisation,
4. penetration detection.

The problem of the whole communications infrastructure of the public administration rests in the fact, that individual departments or sections of the public administration do not face the obligation to take part on this project. Hence, a number of sections exist whose connectivity is not secured via the Intranet of public administration (KI ISVS), but have built up their own infrastructure. As a result, the "end public authorities" (municipalities in particular), which need an access to several information

systems, have to dispose of several parallel built up connections in order to securely communicate with respective systems. Theses problems can neither be solved by the implementation of ISVS (Information Systems of Public Administration) standards, because the standards focus only on the general features of the systems and not on the possibility of its integration and definition of common reference interface.

II.5   The services provided to citizens, businesses, and other stakeholders

In the Czech Republic it is usual, that eGovernment services are offered in two ways. Either they are implemented into various portals – so called "portal services" or are performed by the means of electronic registries. Through portals either services are offered that provide citizens and enterprises with certain information from the public administration or it concerns more sophisticated applications which allow transactions between citizens and enterprises on one side and public administration on the other one. The services provided by the means of electronic registries are principally based on the exchange of electronic mail between citizens and enterprises on one side and public administration on the other one.

The basic overview of the services and functions of various eGovernment portals and the description of the basis principles of electronic registries is described below.

eGovernment

II.5.1   The Portal of the Public Administration – PPA, www.portal.gov.cz

The administrator of the PPA is the Ministry of Informatics. The PPA is, by the Act No. 365/2000 Coll. on the Information Systems of the Public Administration, legislatively anchored as the system creator and operator in order to facilitate distant access to information provided by the public administration to the public.

The main purpose of the Portal of the Public Administration is to help citizens and firms with orientation and communication with the offices of the public administration.

PPA Information Services

The application Directory offers access to information about the different authorities of the public administration and about the administrative areas of towns and municipalities. The information about the administrative areas of towns and municipalities is complemented with basic data provided by the Czech Statistical Office, containing information about subjects like the origin of the city or municipality, elevation above sea-level, number of elementary schools and legal entities, number of inhabitants including the proportion of women and average age, etc.

The application *Acts* enables the non-professional public to obtain and download information about valid statutory texts of the Czech Republic and EU decrees. The main objective of this application is to ensure general access to valid legal documents. Visitors of the portal have therefore the possibility to obtain current statutory texts and are able to download and save the whole text of the Act, regional bulletins, and basic legal documents of the EU.

The application *Life Situation* offers help with negotiations with the authorities of the public administration in the form of comprehensive state guaranteed instructions. It provides information regarding where, how and what to arrange, about administration fees, necessary documentation, etc. It also helps arrange several agendas, both everyday and extraordinary.

The application *Life Situation* is thematically arranged according to the categories of Citizen, Entrepreneur, Foreigner, and is interconnected with the above-mentioned directory containing the contact information of the authorities of the public administration. There are also references to legislative measures, related procedure descriptions and information about the possibility of electronic submissions. Furthermore, it is connected with the map services. The 'Life situation' section currently

contains more than 350 instructions on how to proceed in the arrangements of official agendas. The instructions are generated, updated and guaranteed by the authorities of the public administration and subsequently controlled by the PPA´s editors.

The application of the map services is the outlet for thematic location related information, divided according the profession categories. Published maps and thematic map sections provide comprehensive, content guaranteed, updated metadata. The map services primarily use state map publications, state guaranteed and maintained registers, thematic sets and databases. The objective of the project is to share as extensive a spectrum of the accessible data sources as possible and ensure its integrated publication. At present, the topics of environment and geology predominate, but sets from the transport, agriculture sector and others are currently being prepared.

Furthermore, the user can find the Commercial Bulletin, the list of tenders and other links from the public administration on the portal.

PPA Transaction Services

The transaction services are sometimes considered as the services pertaining to electronic submissions. The provision of these electronic services of the public administration enable the exchange of data between citizens and firms on one side and the authorities of the public administration on the other side. An additional separate transaction service offered by the PPA is data exchange among the authorities themselves.

The main purpose of transaction services is to allow as many needs to be resolved through electronic communication as possible, so that the citizen or the firm does not have to submit traditional paper forms or statements and can send this information to the authorities electronically. The application benefits relevant institutions, permitting them to work with the data without having to pay the costs of transferring the data from a paper into an electronic form. Because the means of electronic data submission have already been tested and are now unified, the authorities can focus on developing online services quickly rather than having to recreate the common structural elements required for all online services.

The transaction services of the PPA provide a common infrastructure, facilitating the connection to different authorities, providing the users with unified access to all launched electronic services, and ensuring a safe infrastructure and that components are appropriate for repeated use by the authorities. The authenticity of transaction services of the PPA are based on the technology of secured electronic signature based on the qualified certificate.

Since its inception in September 2003, the PPA transaction services have passed several basic milestones, one of the most important of which was the beginning of cooperation with the Czech Social Security Administration (CSSA) and the preparation of the first electronic service. Currently, the following services are successfully provided to the CSSA: the submission of evidence lists of pension insurance, health insurance application and signing-off forms and the statement of receipts and expenditures of self-employed persons.

The whole process required preparation not only on the side of the PPA, but also on the side of CSSA. Consequently, it was necessary to familiarize the developers of wage and personnel systems with the rules of communication via PPA. The submission of the evidence lists was launched on 1 January 2005 and by 31 August 2005 more than 4 million forms had passed through the PPA. Since 1 July 2005, the electronic service of the employees´ application and signing-off forms for health insurance has been in operation, with more than 2 million forms accepted by the end of August 2005.

As of 2 January 2006, a total of 35,998 organisations, of which 18,415 employed more than 25 employees, registered for the electronic submission of the CSSA´s forms. In November 2005, the number of these organisations only amounted to 29,351 with 3,205,153 employees in total. In practice, this means that almost 63% of institutions use the eSubmission of the CSSA. An additional 17,583 small institutions having up to 25 employees and 828 self-employed persons also submit their forms electronically.

In 2005, a service of the Regional Authority of the Central Bohemian Region and a notice of appeal submission of the Construction Administration was connected to the transaction part of the portal, allowing users to send the building documentation from the Building Office to the Building Management Department of a given Regional Authority. While in the previously mentioned services, the communication occurs between a private legal entity and the public administration authority, this service ensures direct communication between public administration authorities.

Furthermore, at this time, operation of the collection of post statements for the Ministry of Informatics, electronic submissions for the Tax Administration and provision of Intrastat statistics the Customs Administration began.

A Community server supports discussion forums about the development of applications for particular implemented services and their transactions, the most frequent questions with answers, development documentation, examples of source codes, and other useful information.

Figure 22: Development of visits and views rates at the PPA
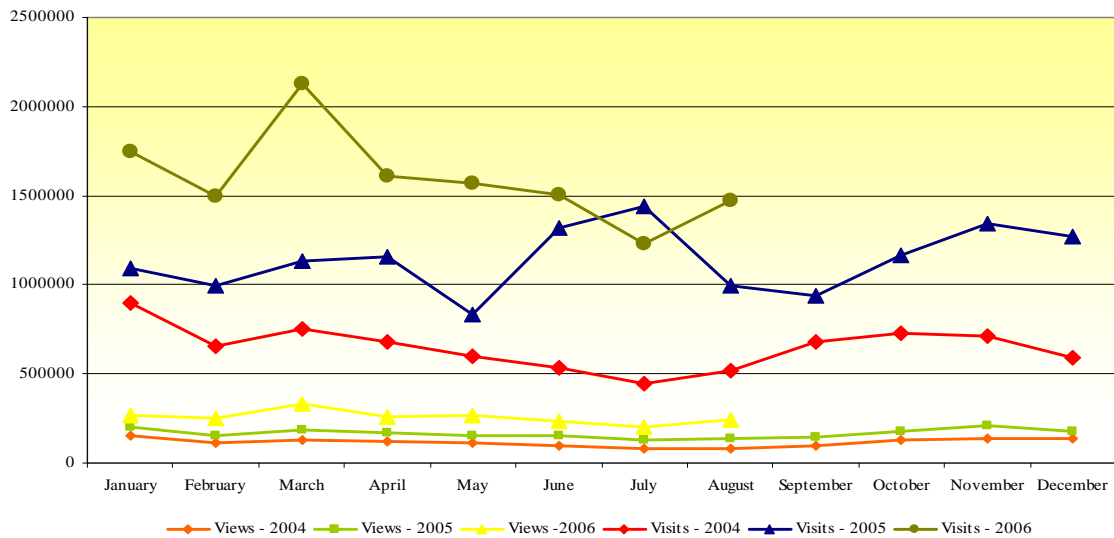
Figure 23: Development of registrations (left) and submissions (right) at the PPA (besides testing part)
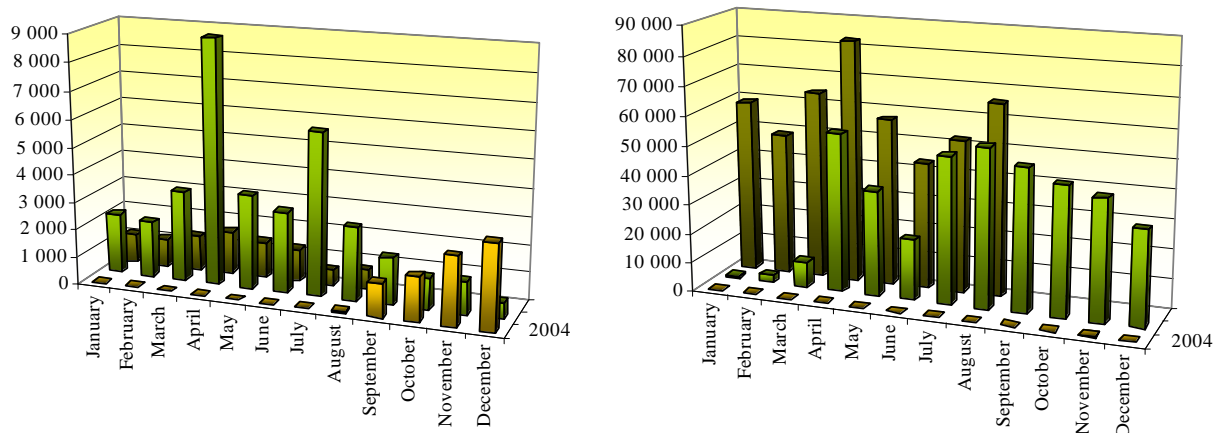
II.5.2 The integrated portal of the Ministry of Labour and Social Affairs (MLSA) - portal.mpsv.cz

At present, the MLSA´s portal is divided into the following sections:

1. Information concerning the whole MLSA, available in the section *MLSA*,

2. Problems of employment, available in the section *Employment*,

3. Information about the social state support, available in the section *State Social Support*,

4. Information on the possibility of working in the EU and European economic area, available in the section *EURES*,

5. Information about social security, available in the section *CSSA*,

6. Access to information from the whole state administration, available in the section *PPA CR*,

7. Information about all addresses in the Czech Republic, available in the section *Address Verification* in the register UIR-ADR.

Employment Section

Besides information concerning basic facts, contact information and facts about employment policy, the following services are the most frequently used:

Vacancies - These are the most visited websites of the MLSA portal. Here, the citizen is able to find vacancies within any employment office in the Czech Republic. For faster searches, the website includes the choice *Simple Search*; more proficient users of information technology or those searching for a specific type of profession can use *Extended Search*. Both options are at the disposal of non-registered persons as well as registered ones. Registration is a very easy process, does not require any personal data and does not require more than 30 seconds for a new user. Registered users gain important advantages, including the ability to set and save selection criteria for required positions. Based on these criteria and the user's desire, the MLSA´s portal automatically sends new vacancies by email or in the form of an SMS. This service is, like the other services on MLSA´s portal, for free.

Advertisement of the job applicants – Users are able to submit their curriculum vitae to the section *Advertisement of the job applicants*. Likewise, employers can search for suitable candidates according to their selection conditions and the facts stated in the curriculum vitae.

School - This section contains an application enabling users to search for a particular school or a profession in the Czech Republic and to obtain detailed information about it.

Maintenance of vacancies - At present it is not necessary for the employer to register vacancies at the Employment Office. Besides the long-established telephone contact, the employer has the ability to generate, correct and cancel vacancies via the internet regardless of the time of day. The employer therefore gains 100% control over the vacancies that are offered through the employment offices. The access password into the system can be obtained at the relevant Employment Office.

Section State Social Support (SSS)

Information for citizens - In addition to up-to-date news there is a notice on the voice information system launched by MLSA and basic information about the particular types of state social support allowances available, such as child allowance, social allowance, parental allowance, housing allowance, foster care allowance, birth grant, funeral grant, and the minimum subsistence level.

Electronic forms of SSS – This is an internet application that facilitates communication between clients and the authorities of the Ministry in the field of state social support. Particular forms of the applications can be printed and subsequently hand written filled electronically with a great deal of user support and printed afterwards or filled, signed with an electronic signature and electronically sent directly. Besides these forms of allowance application, a large number of other confirmation documentation and declaration for the state support allowance can be found and printed here.

State social support allowances - Users have the possibility to calculate directly on the screen according to their current life situation their minimum subsistence level, child allowance, social allowance and housing allowance.

Registered information - Users have the possibility to verify data about their person and the allowances paid to them are gathered in the central databases of the MLSA. They are able to register in three different ways: with a user name and password, with the MLSA´s client identifier and password, or with a certificate with the MLSA´s client identifier.

Choice of SSS authority - Here the user can find detailed information about his relevant authority (address, phone and other contacts, opening hours, etc.).

EURES

This part of the MLSA portal is designed for clients who do not only look for jobs in the Czech Republic, but are interested in the whole European economic area. Information on particular European economic area countries is prepared for them. The structure of information is unified for all the countries and should provide the answer to questions regarding the profitability of work in a particular country and requirements to be filled for legal employment and enjoy the same legal advantages as any other citizen of a member country. If this set of information is not sufficient, the client can use the section *Frequently Asked Questions*. Information on the optimal layout of curriculum vitae sent to the employers in different European countries is accessible in the section Curriculum Vitae. If they have remaining questions, the client can easily search for contact information regarding the nearest EURES adviser or EURES contact person. Contacts are presented both in the forms of phone numbers and electronic addresses.

As Czech clients of EURES can find information on living and working conditions and on conditions of employment in EU, so can citizens from other countries find information about the Czech Republic.

Verification of addresses in UIR-ADR register

The UIR-ADR address register was developed by the Ministry of Labour and Social Affairs within the SSS information system for securing communication with clients. The register includes the addresses of all the buildings with a house or evidence number. In the programme searching form, the user can enter even a part of particular address to verify its existence or find its specific attributes. The system then displays one or more addresses that fulfil the given conditions and adds all territorial identifications. In each row of addresses found, there is a picture with the globe symbol. When the user clicks on this symbol with the left mouse button, a window with a map appears in which the location of the address is marked by a pin.

The Czech Social Security Administration

On the web page of this institution, one can also find references to basic information on the Czech Social Security Administration and its activities, above all on social security insurance, pension insurance, sickness insurance, information from EU and other data and contacts.

Figure 24: Number of pages viewed – monthly statistics; Integrated portal of MLSA (March 9, 2006)
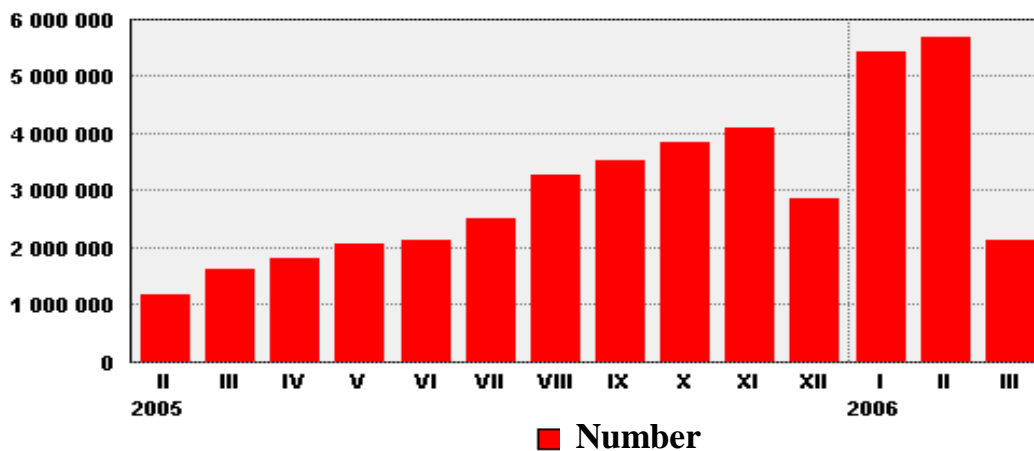
Source: Ministry of Labour and Social Affaires, 2006

II.5.3   Portal of the Ministry of Finance, www.mfcr.cz

The Ministry of Finance encourages the implementation of information and communication technology into internal processes of tax administration as an inherent part of the eGovernment project. The first opportunity to submit a declaration of taxes at least in the form of data files was offered by the Ministry to the broader public in 2000. As the Act on Electronic Signature No. 227/2000 Coll. was accepted and the first qualified provider of certificate services was established, it became possible to use the electronic signature and submit the declaration in purely electronic way.

At present it is possible to make a submission for:

1. Declaration of taxes in the case of natural person income tax
2. Declaration of taxes in the case of corporate income tax
3. Declaration of taxes in the case of vehicle excise duty
4. Declaration of taxes in the case of real estate tax
5. Declaration of taxes in the case of value added tax
6. Report on non-taxed amounts paid to natural persons
7. Summary VIES reports
8. General (other) submission in tax issues

The current system of electronic submission for tax administration makes it possible for the users to process and send declarations of taxes and other submissions in tax issues, but it is not frequently used. Since the introduction of the electronic submission option in 2005, 76 512 submissions were realized at the Ministry of Finance. In a comparison of year-on-year changes, there is a clear and visible trend of a significant increase in the number of submissions (311 in 2002; 7,018 in 2003; 20,205 in 2004 and 48,978 in 2005). However, there is still a notable potential in increasing the number of submissions.

The public predominately uses electronic submission services in the declaration of value added tax in which the number of electronic submissions is equal to 2% of the total number of declarations of VAT. These numbers constitute the main motivation for the implementation of measures to support electronic communication between tax subjects and territorial financial offices.

The use of electronic submission services benefits both users and tax administrators. It benefits users by allowing them to control the data they enter into the system so that they can be certain that their submission is correct. There is thus a decreased need to correct the data later, as well as a decrease in the posting costs involved in sending the declarations from personal computers. It benefits tax collectors by increasing the number of electronic submissions, which then lowers time and posting costs due to the fact that it relieves them from the responsibility of rewriting the data into electronic form and decreases the number of correction requests.

The total number of electronic submissions is not only influenced by the technical conditions of electronic submissions, but also by legal obligations.

As it is clear from the above-mentioned facts, so far the development of electronic communication has above all focused on submissions from the public to tax administrators. The tax administration also aims to provide high-quality services developed in such a way that they reflect the requirements of the clients, or tax subjects. Thus, it aims to develop electronic communication services provided to the tax public using the client approach. The project Tax Portal is also being developed for the provision of services to the public via the internet. It will include all implemented electronic services for the tax public, which will then be gradually implemented into the common framework. The first service the project plans to implement is the electronic accessibility of the information regarding the state of the client's tax account, i.e., information as to whether or not there are arrears of tax, overpaid taxes, or if the client's account is balanced. Last but not least, the interconnection between the Tax Portal and the Customs Administration (above all to information sources from INTRASTAT) is being developed. The acceptance of the custom declarations from customs agents and communication within the

customs proceeding is available also electronically. In this case both certificate types can be used, the commercial one as well as the qualified one.

II.5.4   The Czech Office for Surveying, Mapping and Cadastre, www.cuzk.cz

Free document inspection in the Real Estate Cadastre

The application for document inspection in the real estate cadastre makes it possible to acquire selected data related to the ownership of plots, buildings, and units (flats or non-residential premises) registered in the cadastre as well as to acquire information on the current status of proceedings such as change of ownership and other rights into the cadastre or for the purposes of geometric plans confirmation.

The inspection of documents in the real estate cadastre is freely accessible to all internet users, does not require registration, and is free of charge. However, the possible outputs are limited if compared to distant access. Extracting from the real estate cadastre and some other outputs are not possible.

Outputs which can be entered and run within document inspection can be found under the references on the left side of the home page. The references are grouped into three sections:

Entry proceedings

Proceedings of the type *Entry* are run for the purposes of the entry of rights based on the contracts on conveyance of real estate, right of lien, right of user, first option right, conveyance of a flat and non-residential premises and others according to the § 33 of Public Notice No. 190/1996 Coll. of the Czech Office for Surveying, Mapping and Cadastre. Outputs in this group have a fixed proceeding type that cannot be changed.

The link *Information* on proceedings launches an output that includes information on participants of a given proceeding, the type of the proceeding subject, and the sequence of activities on the particular cadastre workplace done within the proceeding, including their time schedule.

The link *Overview* of proceedings provides a list of proceedings at a particular workplace started before and after the setting of a given proceeding. For each proceeding the date it was set up, its state, and the date of its last operation is provided. Proceeding numbers can be used as a link to start up the output Information on proceeding.

The link *List* of accepted proceedings leads to the creation of a list of proceedings set on a given day. The list and possibilities of the references are similar to that of the *Overview of Proceedings*.

Other proceedings

Outputs obtained under the links in this group are analogous to the outputs from *Entry Proceedings*. In addition, the users can choose the type of the proceeding from two alternatives: record and geometric plan. Record proceedings are set for the purposes of the entry of legal relationships to real estates on the basis of the court decision or decision of other state institutions or on another basis. Geometric plan proceedings are set on the basis of requests for plan confirmation. Other functions of the references in this section are very similar to those in the section *Entry Proceedings*.

Information from the Real Estate Cadastre

The links *Plot, Building* and *Unit* provide information on a given piece of real estate, particularly owners or co-owners, including shares of the ownership, and the number of the ownership document.

The available information on plots of land also includes the area of the parcel, including the method of its determination, the type and method of its use and the indication of its location on the map. If there is a building located on the parcel, it displays the reference to that building.

Information on building includes the type of the building, the method of use of the building and reference on the plot, where the building is located. If there are units located in the building, the reference to them is displayed.

Information on unit includes the type of the unit, its method of use, share of the unit on common parts of the building and reference to the building in which the unit is located.

Distant access to the Real Estate Cadastre

Distant access to the Real Estate Cadastre makes it possible to acquire data from the real estate cadastre for the whole Czech Republic via the internet. Outputs obtained, e.g. extracted from the Real Estate Cadastre, are formally and factually completely identical with the documents issued at the same point of time by the real estate cadastre.

Cadastre maps in digital form are so far only available in one third of cadastre territories. Other territories are being added gradually and continuously, depending on the state of digitalisation of the real estate cadastre. The central real estate cadastre database is updated through the data network of the Czech Office for Surveying, Mapping and Cadastre every two hours. Distant access is a paid service accessible to everyone that has established a client account in which all the outputs are charged. Client accounts are designed mainly for corporations and natural persons expecting long-term and frequent usage of distant access. Regarding people interested in one-time outputs from the Real Estate Cadastre related to any place in the Czech Republic, the same service can be provided by all Real Estate Cadastres. The total number of paying users of distant access to Real Estate Cadastre data was 4,169 by the end of 2004. Besides paying users there exists a group of non-paying users, primarily municipalities and regions. This group had 1,979 members by the end of 2004.

II.5.5   Portal Businessinfo, www.businessinfo.cz

Searching for electronic forms on the internet

Instead of rewriting the data in paper form, the portal, www.businessinfo.cz makes it possible to fill in and work with forms and requests of the offices and institutions via the internet or offline on the computer. The whole application is prepared to send the data directly to the competent authorities. Moreover, the application stores some user registration data, and the time of filling is thus significantly reduced for each new form.

Searching for subsidies and grants for entrepreneurial activities

The service *Subsidies, Grants* includes an extensive database of subsidies from EU funds and from the state budget of the Czech Republic. Furthermore, subsidies provided by regions and other subjects are also available. The database is continuously updated, making it possible to search according to given criteria.

Searching for goods for foreign customers

The database includes current foreign inquiries from all the sources of state administration. Searching in the database of foreign inquiries can be based on the custom tariff classification, on particular regions, time horizon, with the option of searching by using a key word.

Searching for workshops, conferences, trade missions or other events

The calendar of events includes a detailed overview of national and foreign trade fairs, workshops, conferences or trade missions. The database supports searches within a sufficiently broad database of entries. In the calendar it is possible to search according to the administrator of the event, the topic of the event, the date of the event, or by a key word.

Searching for public procurement

The *Public Procurement* database gathers calls from different electronic market-places in the entire Czech Republic. The table provides for quick orientation due to the possibility of public procurement sorting according to the number, name of a submitter, approximate price, and date of submission of the offers. Appropriate institutions and electronic market-places are responsible for providing valid and correct information.

Searching for instructions related to communication with authorities

The database *Life Situation* of an entrepreneur includes instructions for different entrepreneurial procedures. The instructions are verified and continuously updated by the appropriate authorities. For example, a guidebook for the establishment of different forms of business or enterprise or for setting-up a trade mark or export insurance can be found in the database.

Figure 25: Visit rate of portal BusinessInfo.cz in 2005 by months
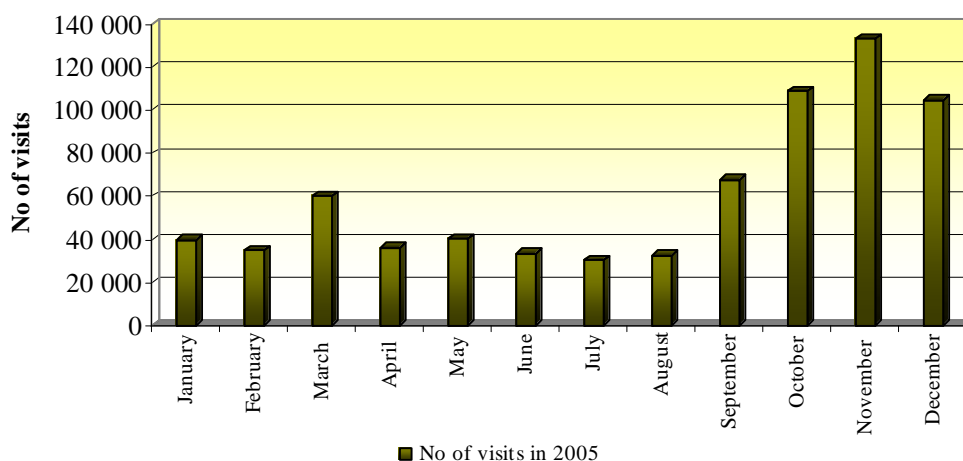
Source: Ministry of Industry and Trade, 2006

The justice portal creates an environment for the presentation of operational data from the field of justice and publishes references on major information sources, which are updated by particular ministry departments. The main information sources of the justice portal are the Companies Register, the centralised files on bankrupt entities, the files on authorized experts and interpreters (including a list of institutions qualified for expert activities) and the list of judges and public prosecutors.

II.5.6   Electronic market-place, www.micr.cz/e-trziste

Based on Government Decree No. 683 from 26 June 2002 on the measures for coordinated spending of financial sources on information and communication technologies, the Ministry of Informatics ensures the operation of electronic market-places for public administration subjects. There are three operators who have a license from the Ministry of Informatics for trading on electronic market-place: B2B Centrum, a.s. Český telecom, a.s. and AllyGeM. At the electronic market-place there are published purchase orders, inquiries and auctions by the public administration offices for the purchase of ICT goods up to CZK 2 million (ca. EUR 65 thousand).

Through the electronic marketplace only a very narrow segment of commodities is traded. Especially, it holds at the central level o public administration. Thus, the trade volume realised through electronic marketplace makes up only a marginal fraction (tenths of a percent) of the total value of public procurement.

Table 11: Transactions at the electronic market place

Month	Number of business transactions	Amount of business transactions (including VAT) in EUR
January 2005	461	1,125,451
February 2005	755	1,723,846
March 2005	1,052	2,195,036
April 2005	1,041	2,582,920
May 2005	1,119	3,130,368
June 2005	1,076	2,938,502
July 2005	664	2,214,432
August 2005	858	2,783,591
September 2005	1,083	3,400,969
October 2005	1,538	7,394,145
November 2005	2,186	9,427,788
December 2005	1,535	5,897,847
Total	**13,368**	**44,814,895**

Source: Ministry of Informatics, 2006

II.5.7   Central address, www.centralniadresa.cz

The Central address is a portal designed for the publication of public procurement information. The portal is, as set by a special government decree, administered and developed by the Czech Post. Its aim is to provide for broad public access to information on the commission, process and results of public procurement, public auctions and transfers of state property.

II.5.8   Services of electronic registries

According to Act No. 227/2000 Coll. on Electronic Signature, each body of public authority must accept and send data reports accompanied by a valid electronic signature via electronic registries. Certain legal regulations have established the conditions under which it is possible to make submissions to a specific body of the public authority, as well as the conditions for the delivery of the documents of the public authority via these registries.

The Act No. 500/2004 Coll., the Administrative Act, governs general requirements for administrative procedure. Paragraph 37 of this rule of law facilitates electronic submission accompanied by a valid electronic signature based on a qualified certificate issued by an accredited provider of certificate services. At the same time, the administrative act imposes on administrative bodies a duty to ensure the operation of registries for electronic submission. In addition to the Administrative Act, there are a number of enactments, which include the special regulation of administrative procedure. Many of them do not permit electronic submission, which leads to deviations in administrative procedure.

There are approximately 520 types of particular submissions in administrative procedure at the level of municipalities and regions. Unfortunately, due to the above-mentioned deviations, which often make an electronic submission impossible, or other restrictions (e.g. an obligation to show or submit a document that does not exist in electronic form), only ten operations can be done electronically without difficulties:

1. Reports on changes, losses and damages of travel documents and identity card
2. Applications for information (general, according to Act No. 106/1999 Coll.)
3. Complaints
4. Applications for an excerpt from driver's evidence card

5. Secretariat – information, questions, meetings, mayor, vice-mayor, secretary
6. Dog fee - fee settlement
7. Submissions of notice
8. Notices on the interruption of entrepreneurial activity
9. Notices on the continuation of entrepreneurial activity
10. Notices on the initiation or shutdown of operation of business premises

Electronic submission to courts is much more difficult than in the case of administrative procedure. According to the Act No. 99/1963 Coll. (the Civil Procedure Act) it is possible to make an electronic submission, but at the same time it is necessary to supplement it in three days by its original or by a written submission of identical wording. By contrast, in the field of administrative justice, it is possible according to the Act No. 150/2002 Coll. (the Judicial Administrative Act) to make electronic submissions by using a valid electronic signature based on a qualified certificate issued by an accredited provider of certificate services. Sometimes at regional courts, paradoxical situations may arise in which the administrative justice submission can be done electronically, while the submission in civil procedure cannot.

The issue of electronic delivery is governed by § 19 of the Administrative Act. If a participant in the procedure wishes to deliver documents electronically, she must request to do so from the administrative authority. Moreover, she can request to do the same for procedures that do not yet exist at the administrative authority, but will in the future. In electronic delivery, the document is considered to have been delivered once when the delivery has been confirmed by the recipient. The confirmation is in of the form of a message accompanied by the recipient's electronic signature, which has been validated by a qualified certificate issued by an accredited provider of certificate services. Providing that the message has been successfully delivered, if the recipient does not confirm the document delivery by the next working day, the administrative authority will deliver the document as if the recipient had not asked for the electronic delivery. If the data message containing the document is returned as non-deliverable, the administrative authority will immediately make another delivery attempt. If the second attempt is unsuccessful, the authority will deliver the document as if the recipient had not asked for electronic delivery.

In addition to the Administrative Act, the delivery process is also regulated by the Act No. 555/2004 Coll., which amended the part of the civil procedure act related to delivery (specifically § 45f of Civil Procedure Act). The justice procedure and the administrative procedure are different in that with the administrative procedure the electronic delivery applicant must identify an accredited provider of certificate services who issued his qualified certificate and administers his evidence and the recipient has three days to confirm a delivery. In the field of administrative justice, the institute of delivery is regulated by the Justice Administrative Act through a reference to regulation in the Civil Procedure Act. The document delivery service is thus identical in administrative justice and civil justice.

II.5.9   Electronic notice board

In addition to electronic registries, the Administrative Act also regulates electronic notice boards. Each administrative body establishes one electronic board, which must be constantly accessible to the public and published in a hard form to allow for distant access.

II.5.10   Summary of services according the IDABC classification

Classification

The level of sophistication of each service is indicated in reference to the maximum possible level for that service.

  Stage 0 - No online service
  Stage 1 - Information: online information about public services
  Stage 2 - Interaction: downloading forms
  Stage 3 - Two-way interaction: processing forms, including authentication
  Stage 4 - Transaction: full case handling, decision and delivery, as well as payment.

Table 12: Services designed for citizens

Service	Evaluation
Income Tax Declaration	**4/4** - This service is fully electronised. It is implemented through the portal of the Ministry of Finance www.mfcr.cz, described above.
Job Searches by Labour Offices	**3/3** - This service is fully electronised. It is implemented through the portal of the Ministry of Labour and Social Affairs http://portal.mpsv.cz, which is described above. Via this portal, citizens can find information on vacancies offered by labour offices in the Czech Republic and submit Job-seeking notices.
Social Security Contributions:	• Unemployment benefits – **(2/4)** This service is only electronised to the extent that it allows the user to download forms, which cannot be submitted electronically. It is implemented through the portal of the Ministry of Labour and Social Affairs http://portal.mpsv.cz, described above. • Family allowances – **(4/4)** This service is electronised at different levels and is implemented through the portal of the Ministry of Labour and Social Affairs http://portal.mpsv.cz, described above. It is an internet application designed for the simplification of communication between clients and the Ministry in the field of state social support. Particular application forms can be either printed and subsequently hand-written or completed electronically using a range of help and check tools and subsequently printed. It is also possible to electronically submit filled forms with an electronic signature. • Scholarships – **(0/4)** This issue is not resolved at the central level. It is the responsibility of the subject allocating scholarships to decide which form of the applications should be used.
Personal Documents	**1/4** - Services related to identity cards, travel documents and driving licenses are not electronised. The only service administered electronically is and the provision of information on completing the forms and on the documents and enclosures necessary for the execution of documents. This information can be found in the information part of the Portal of the Public Administration in the above described section *Life Situation*.
Car Registration:	**1/4** - This service is not elecronised. The only service administered electronically is the provision of information on completing the forms and on the documents and enclosures necessary for the registration or deregistration of the car. This information can be found in the information part of the Portal of the Public Administration in the above-described section *Life situation*.
Application for Building Permission	**1/4** This service is not elecronised. The only service administered electronically is the provision of information on completing the forms and on the documents and enclosures necessary for application. However, this information is not provided at the central level. Its provision in the form of an internet presentation depends on willingness of appropriate municipality under whose responsibility the appropriate construction administration operates.
Declaration to the Police:	**1/3** - This service is not electronised.

Public Libraries	**0-1/3** - It is the decision of each library, and ultimately the library authority, whether or not to grant public access to its catalogues via the internet. There are libraries providing this service, but not many.
Certificates (birth, marriage), Request and Delivery:	**1/3** - This service is not elecronised. The only service administered electronically is the provision of information on completing the forms and on the necessary documents and enclosures. However, this information is not provided at the central level. Its provision in the form of an internet presentation depends on the willingness of the appropriate municipal office to do so. In some cases, municipalities facilitate the downloading of forms.
Enrolment in Higher Education:	**2/4** - It is the decision of each school, and ultimately the school institutor to permit the electronic submission of applications. There are schools that provide this service, however the majority of them only facilitate information transmission and application downloads.
Announcement of Moving (change of address)	**1/3** - This service is not elecronised. The only service administered electronically is the provision of information on completing the forms and on the necessary documents and enclosures. However, this information is not provided at the central level. Its provision in the form of an internet presentation depends on the willingness of the Municipal Office under whose responsibility the appropriate register office operates.
Health-related Services (e.g. appointments for hospitals):	**1/4** – This service is not elecronised at the central level. The only service administered electronically is access to a limited amount of instructions and information. Some information can be found in the information part of the Portal of the Public Administration in the above-described section *Life situation*, eventually at web pages of the Ministry of Health www.mzed.cz or at web pages of the institutors of particular health units. Local exceptions do exist, as is the Medipartner program of HZP for its policyholders (see description of eHealth projects in section I.8.3).

Table 13: Services designed for businesses

Social Contributions for Employees	**3-4/4** – The electronic submission of pension insurance evidence files, health insurance registration and deregistration of employees and summary of receipts and expenditures of self employed persons for 2005 can be submitted electronically through the Portal of the Public Administration described above. Furthermore, at the aforementioned portal of the Ministry of Labour and Social Affairs http://portal.mpsv.cz, the users have the opportunity to calculate their subsistence minimum, child allowances, social benefits and housing allowance based on their current situation.
Corporation Tax: Declaration, Notification	**4/4** - This service is fully electronised. It is implemented through the portal of the Ministry of Finance www.mfcr.cz, described above.
VAT: Declaration, Notification	**4/4** - This service is fully electronised. It is implemented through the portal of the Ministry of Finance www.mfcr.cz, described above.
Registration of a New Company	• Acquiring a trading license – (**2/4**) This service is electronised only to the extent that it permits the acquisition of information and instructions as well as downloading and filling interactive forms via the portal Businessinfo www.businessinfo.cz described above. Information and instructions can also be found under information services of the Portal of the Public Administration in the section *Life Situation* described above. • Establishing a trading company – (**2-3/4**) this service is electronised only to the extent that it permits the acquisition of information and instructions as well as downloading and filling interactive forms via the portal Justice www.justice.cz. Electronic submission to electronic registries is also possible. Because a number of enclosures are needed to establish a trading company and often these enclosures cannot be obtained electronically, it is necessary to submit these documents to the registration court in the paper form.
Submission of Data to Statistical Offices	**3/3** – These services are fully elecronised and are implemented through the portal of the Czech Statistical Office www.czso.cz.
Customs Declaration	**4/4** This service is fully electronised. It is implemented through the portal of the Ministry of Finance www.mfcr.cz, described above. Customs declarations are implemented in the section of the portal dealing with customs administration.
Environment-related Permits	**1-2/4** - This service is not elecronised. The only service administered electronically is access to instructions and information on completing the forms and on the necessary documents and enclosures. Some information is provided at the central level, but others are not, and its provision in the form of an internet presentation depends on the willingness of the appropriate municipal office under whose responsibility the appropriate environmental department operates.
Public Procurement	**1/4** - This service is not elecronised due to legislative reasons. A newly approved act on public tenders should facilitate a higher level of electronisation. So far it has been only possible to acquire information on public tenders via the portal www.centralniadresa.cz, and eventually at the portal Businessinfo www.businessinfo.cz, which are both described above. The only fully electronic service provided is the realization of purchases of ICT commodities amounting up to CZK 2 million (ca. EUR 65 thousand) through the portal Electronic marketplace www.micr.cz/e-trziste, which is described above.

Following publicly accessible data

II.5.11   Description of major eHealth services

General Information and Statistics on the Czech Health Sector

Responsibility: Institute of Health Information and Statistics (UZIS – **www.uzis.cz**; directly subordinated to MoH).

The sophistication stage: **2/4** according the IDABC classification.

Description: The Institute of Health Information and Statistics of the Czech Republic (UZIS CR) was established in 1960. It is a government organisation funded by Ministry of Health. The Institute consists of a central office in Prague and regional offices in regional capitals. The main task and object of the activities of the Institute is the management and co-ordination of the National Health Information System (NHIS), including its further development and improvement. The functions of NHIS include collection and processing of information concerning population health status, provision of healthcare, health sector structure and health insurance financing, the management of national health registrars, the provision of information to the extent determined by law and other regulations respecting the protection of personal data and the exploitation of this information in health research. The tasks of UZIS CR and of NHIS are defined by Act No. 20/1966 Coll. on Public Health and in the wording of later amendments - §67c. On the basis of the Competence Act, the Institute is a component of the State Statistical Service and performs this service according to Act No. 89/1995 Coll. on State Statistical Service, in the wording of later amendments.

Applications:

Data Presentation System (DPS) - DPS has been developed in cooperation with the World Health Organization (WHO) as a part of the programme EU/WHO Copernicus Care Support Project. The purpose of the system is to present statistical data in a clear, comprehensible and user-friendly way. The system is a helpful tool for reviewing, analysing and comparing large amounts of statistical data. The Dynamic Data Tables contain health indicators collected from each of the fourteen regions and the Czech Republic for the time series beginning 1996. The indicators are divided into six main groups: Demography, Health status, Health services, Economic situation, Expenditure on healthcare, Environment and Cancer Registry.

National Registrar of Health Establishments

Medical costs (reimbursement or direct settlement)

Responsibility: Health insurance companies (for web page see the section on Health in the Portal of the Public Administration)

Sophistication stage: **3-4/4** according the IDABC classification (depending on health insurance company)

Description: Health insurance is compulsory in the Czech Republic and is administered by public health insurance companies. These companies, at present totalling 9, are independent bodies that cannot make a profit, and any surplus goes to a special account called the Reserve Fund. Their internal spending, including capital investments, is limited by law as a percentage of their collected insurance premiums.

Communication between health insurer and healthcare providers concerning claims reimbursement is electronic, some of the insurers also offer services to insurees, such as downloadable forms, statements of claims, payment records, etc., through their portals (see also GHIC Portal below). Some health insurers try to motivate their customers to

monitor providers' behaviour, review the claims and report any irregularities by offering a bonus program for the judicious usage of healthcare services and participation in health management programs. Unlike the GHIC, the statements of other health insurers are in general available in real time, not on an annual statement of expenses basis. The example of a statement of claims is in the Annex 2.

The Centre for International Reimbursements (interstate clearing and settlement centre – CMU)

The Centre for International Reimbursements is an association of health insurance companies. Its founders are all health insurance companies active in the Czech Republic. The Centre for International Reimbursements has been acting as a contact point in the field of health insurance, based on MoH authorisation since 1 May 2002, for interstate (mainly European) health insurance payments. The costs of benefits received by the Czech insurees in EU countries and in contracting countries, as well as the costs of benefits provided for the insured from EU and contracting countries in the territory of the Czech Republic are settled through the Centre. The Centre has permitted the electronic settlement of claims since the beginning of 2006.

GHIC ICT applications – GHIC Portal (www.vzp.cz, www.portal.vzp.cz)

GHIC as the largest health insurer in the Czech Republic has played a key role in eHealth applications, both by operating its own portal and by funding the "IZIP" project since its inception.

The GHIC website provides a wealth of information related to the GHIC itself, its contracting parties, or care providers, the healthcare industry, legislation, healthy lifestyles and health advice to GHIC club members, as well as to the general public.

To access the GHIC portal internal section, at least one commercial certificate is necessary; for an e-signature, a qualified certificate is required. As of December 2006, GHIC recognize certificates issued by 5 different certification authorities and banks. Access to the portal is free.

Services offered by the Portal to healthcare providers:
- Verification of the registration of insurance holders
- Verification of GHIC contract validity
- Search of the provider with a valid contract with GHIC
- Invoicing – claims reimbursement
- Billing reports transfer

Services to health insurance premiums payers:

Employers and the self-employed:
- Processing and sending of statistical reports
- Sending of reports on insurance premium payments by the employers
- Verification of the status of premium payments
- Sending of notifications on the change in the employment status
- Receiving of statements on income and expenses in a given year

Services to policyholders:
- Sending of notifications of the policy holders
- Request of a statement or review of claims submitted by healthcare providers in a given calendar year
- Report of any irregularities in the statement of claims

GHIC operates a phone based information service.

Health related services (interactive advice on the availability of services in different hospitals; appointments for hospitals)

Responsibility: websites of insurers, websites of providers

Website: The providers' websites and relevant data is also provided by the UZIS (through National Registrar of Health Establishments) and the Portal of Public Administration (PPA); insurers' web sites are accessible through the PPA

Sophistication stage: **1/4** according to the IDABC classification

Description: Information only. The national health policy is coordinated by the Ministry of Health, but most of hospitals are managed by regional governments since 2003 and there are number of private/church based/municipal hospitals as well.

The degree of sophistication of the web sites of the Czech hospitals varies tremendously from very basic to more developed sites that offer comprehensive information to patients and visitors (for example www.homolka.cz).

The Rankmed organization (www.rankmed.cz) performs from time to time an evaluation of the quality of eServices offered by healthcare facilities and other institutions. Figure 26 contains data on the evaluation websites of the biggest hospitals in the Czech Republic as of the year 2004. The criteria used for evaluation apply internationally recognized standards for publication of health and healthcare information on Internet (see MedCIRCLE, www.medcircle.org). For each criterion the weights are set based on its importance. There are 20 criteria used that can be grouped into 4 main categories: presentation, navigation, functions, and credibility of the web pages.

Figure 26: Ranking of hospitals by RANKMED
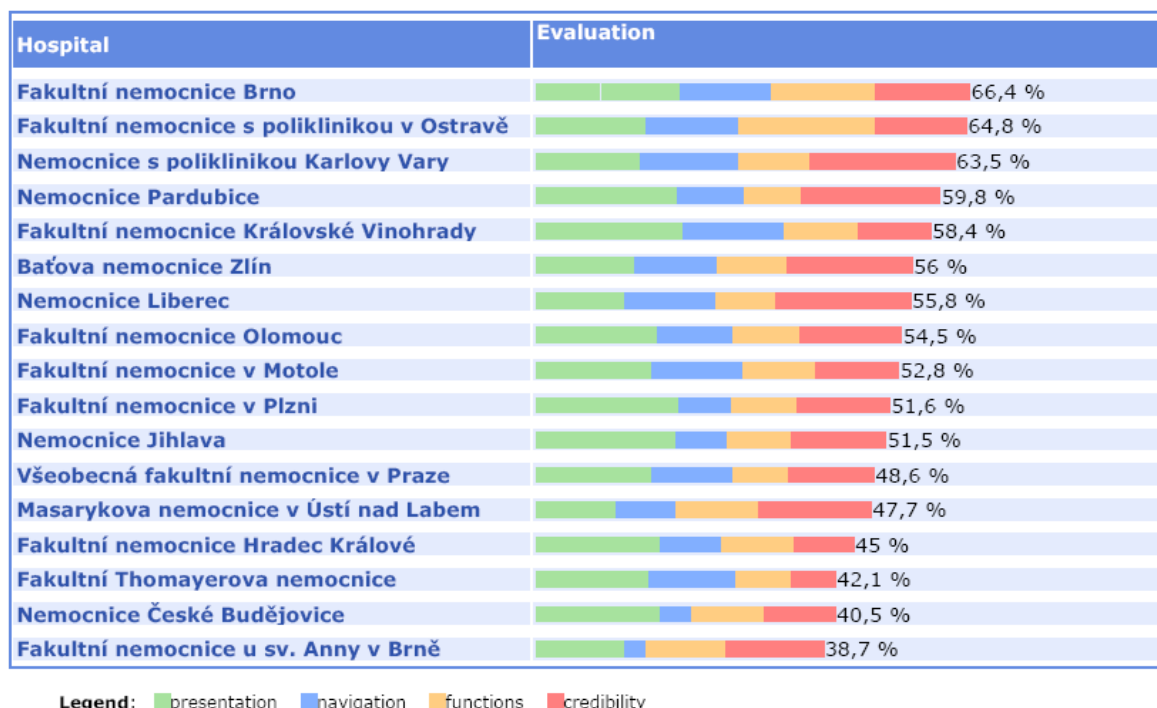
Source: www.rankmed.cz, evaluation done in 2004

Electronic management of personal health information

Responsibility: IZIP for GHIC members (www.izip.cz), Medipartner for HZP (one of sector insurance funds; www.hzp.cz)

Sophistication stage: **3/4** according to the IDABC classification

Description: IZIP is an electronic web-based information system that includes protected personal health data. The project is managed and operated by a private company appointed by the largest health insurance company, GHIC. The project is financed through subsidies of GHIC based on a long-term contract. Projects are described in more detail in section II.2.3

ePharmacy

Several private ePharmacies operate in the country (www.lekarna.cz), and dozens of pharmacies operate their web sites, offering a range of services including advice, consultations, the ordering of non prescription drugs, food supplements. **However, it is important to stress that it is not legal to offer prescription drugs on the internet or through web sites in the Czech Republic.** Prescription drugs must be picked up at the pharmacy in person.

General health advice

There are dozens of sites driven by commercial considerations that focus on general health issues such as www.doktorka.cz or www.e-zdravi.cz

II.6   The systems and solutions in place, as well as the unsolved problems

In the Czech Republic the most serious problem hindering the progress in eGovernment appears to be the non-existence of legislation that would allow proper development of online services. On one hand there are legislative obstructions such as unresolved new instruments and institutes and on the other hand, out of date organisation-technical rules rooted in the legislation. These rules make it impossible to use new procedures in spite of the fact that relevant public authorities dealing with the issue are technically, as well, as organisationally ready to settle the issues online. The fundamental steps that are necessary for the eGovernment development in the Czech Republic are the ones leading to change in legislation. Only after the revision of legislation will have been done, it will be possible to attain appropriate development in the field of eGovernment. The most essential changes to be made are described below.

II.6.1   Data sharing between individual registers

So far, in the legal order of the Czech Republic, there has been no legal enactment that governs the unified rules for data sharing by the execution of public administration. Neither is there such an enactment for providing information from the information system of public administration for the purpose of public administration execution by other bodies of public administration, nor for the unification of data stored in a register information system.

The legal regulation of the individual information systems of the public authorities is fragmented into numerous legal regulations. The laws governing the individual information systems create a legal environment which by its definition does not facilitate communication between the public administration authorities, primarily because of its strict definition of the set of information users managed in the respective information system. Data sharing is enabled only in a precisely and strictly specified and limited manner and only for selected subjects. The general conditions for data sharing are not set anywhere. For that reason, data sharing between different systems takes place under varying conditions, mainly as far as technical issues are concerned. Each new link between information systems has to be newly designed and the interconnections from one system to another

may occur in a number of different and mutually incompatible ways. In this way, the incompatibility of the information systems hinders the further interconnection of information systems and, consequently, more intense expansion of the modern execution of public administration.

The activities of public administration bodies are supported by individual partial information systems. In practice, the communication between these systems occurs at different levels. Overall, it cannot be considered entirely satisfactory (for example data sharing is rare), even though a number of data is repeatedly requested from physical and legal entities. There are obvious problems with the subsequent mutual communication of information systems.

Several legal regulations do not explicitly address the electronic form of the relevant records, for example, registers and lists, even though a number of them are de facto administered electronically. The data in electronic form are rarely legally binding. Also the sites providing registration, filing and additional entries into files are too fractured. These sites often do not communicate among themselves, sometimes even within one information system. The up-to-date IT equipment is also missing in several instances.

The current legal regulations often do not allow for the verification of data proposed for entry, which in consequence leads to flawed data in the registers. For that reason, the separate registers under the public administration authorities cannot be considered a functional and cooperative unit.

The general legal regulation of information exchange in the Competence Act and others is insufficient and in practice often dysfunctional. The possibilities and competences of public administration authorities with regards to the sharing, forwarding and provision of necessary information are only ambiguously and partially stated. The administrators of the public administration registers have no explicit obligation to keep data updated and correct, with the exception of personal data. When the public administration authority is legally obligated to forward data, the formal statement of the obligation is usually vaguely worded and the data is usually considered by the accepting authority only as a supplementary , or control, source for the data which it has already collected on its own.

The Ministry of Informatics tried to solve problems with data sharing between registers with a legislative proposal about data sharing that would put prerequisites for the creation of a network of public administration registers in place, which would serve as a unique source of information about subjects recorded in these registers. Other information systems would take data from these registers. By this measure, the consistency would be assured so that authorities could not enter different and incorrect data, such as legal bodies with varying or non-existent business names, into records. Hence, there would be no threat of public administration execution and at the same time, those working within the public administration systems would face fewer bureaucratic tasks. However, ultimately this proposal was not recommended for the government approval as it did not rank among the Government priorities, and the Czech Republic still resides in a disconsolate state of being, regarding the data sharing.

II.6.2   Random personal identification number

Currently, the birth number is the predominant form of identification of citizens of the Czech Republic within the framework of the information systems of public administration. It is, however, not a random identification number; it includes date of birth, sex and the numbers distributed in some years also provide information about place of birth. In addition, it is no longer valid after the date 31 December 2053. To remedy this problem, the Ministry of Informatics is developing a random personal identifier that is unique does not contain any external meaning. Even though the personal identifier is used as reference data in the basic registers and should therefore be implemented before the beginning of the construction of the citizen register, so far no crucial proposals have been submitted by the Ministry of Informatics.

II.6.3   Unequal legal status of the paper and electronic form

Czech legal order differentiates between documents in the paper and electronic form. Legal regulations that mandate the issue of legal documents in paper form hinder the development of eGovernment. Even when the legislation allows the issuance of legal documents in both paper and electronic form, some authorities refuse to accept these alternatives and continue to issue legal documents only on paper. Paper documents cannot be used as annexes to separate process submissions necessary for electronic communication with public authorities.

The think tank eStat.cz has developed a legislative proposal that proposes the implementation of the two-way conversion of documents from paper to electronic form and vice versa. The legislative proposal would grant the converted documents the same legal validity as the original document. This conversion would be done by notaries and those municipal authorities with the Registry Office. Also, each authority could convert documents pertaining to the services for which it is responsible, such as administration or the issuance of abstracts of records, etc. Thus, if an authority were, according to established legislation, to issue the abstracts of records from its registers only in paper form, but a citizen requested to receive the abstract in the electronic form, then, at its own cost, the office would be obligated to issue the abstract in an electronic form as well. The converted documents could then be used for eGovernment purposes, such as annexes to submissions to other public authorities.

II.6.4   Administration of electronic files and electronic documentary services

Files pertaining to individual proceedings are administered in the paper form, which leads to problems associated with their circulation and treatment and often results in lost documents.

The think tank eStat.cz has developed a legislative proposal that would require that files will be administered electronically and saved in the central data warehouse. It would prevent the possible loss of documents and simplify the administration and transfer of files, leading to a more efficient overall administration.

II.6.5   The need for a central contact point for electronic communication with public administration authorities

In the Czech Republic, there is no central contact point through which citizens or entrepreneurs can communicate with or submit documents to public authorities, or through which individual offices can deliver legal documents to citizens and business. Currently, the majority of eGovernment services are dispersed among several portals managed by several different authorities. Furthermore, each authority has its own separate electronic registry. Citizens must know the electronic address of the appropriate registry in order to contact the authorities electronically. There is no accurate list of addresses of individual authorities based on the services that they provide, and it is therefore difficult to deliver legal documents materially and locally to the relevant authority.

The think tank eStat.cz has developed a legislative proposal that would establish a central board for communication with public administration authorities. It would be based on data boxes assigned to individual subjects, who would be assigned random identification codes. The data boxes would be accessed through the specific random codes of individual users and their PIN codes. If there is more than one user of a data box, e.g. in case of legal entities, then each user would have his own PIN code and the data box would recognize which user has accessed the box. This form of log in does not require an electronic signature, and so even those who do not possess an electronic signature can use the data boxes, e.g. as a delivery address for official legal documents. The legislative proposal states that the formation of data boxes would be obligatory for all private entities and all public authorities and optional for private persons. The electronic board would be able to create documents capable of being filed or archived. All the operations performed via the electronic board would have equal validity to operations done in the paper form.

II.7   The acceptance and usage of technologies and services

In the Czech Republic available statistical data on eGovernment do not meet the requirements mentioned in the terms of reference of this study. The Czech Statistical Office (CSO) processes only some selected data. If some other authorities request different data than the ones supplied by the Czech Statistical Office, than it is demanded from the CSO or from other agency that deals with the statistical data collection and processing. For that reason, the data used in the study which are quoted from other sources than CSO are data created on request for a respective authority.

II.7.1 Communication with public administration

According to the survey conducted by the company Factum Invenio in January 2006, more than one third (38%) of internet users in the Czech Republic older than 15 years used the internet for the purposes of information searches related to public administration. The estimated number of regular users equals 8%. A significant share of users (42%) plans to use the internet for these purposes in the future.

Mostly middle aged people (30-44 years) and individuals with higher education use the internet for communication with the public administration or to search for related information in this domain. From a regional point of view, 51% of Prague citizens search for information on the web pages of various authorities, as compared to only 19% and 20% of citizens in the Zlin and Vysocina Region, respectively.

Figure 27: The usage of the internet for the search of information related to the public administration or for communication with public authorities – internet users (data in %, N=674)
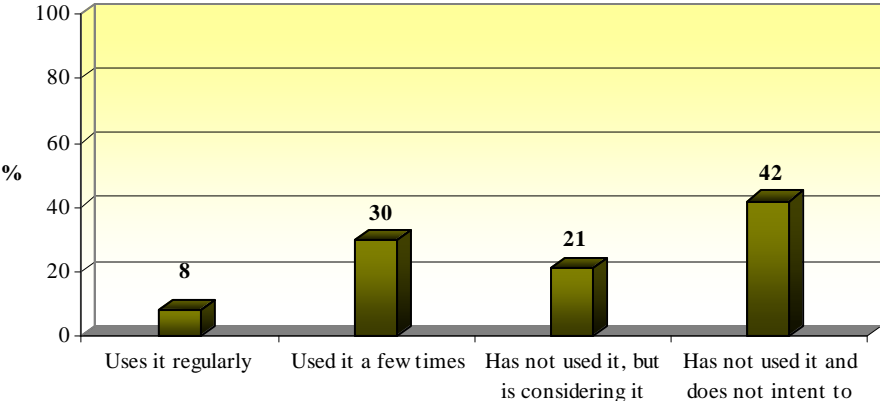
Source: Factum Invenio, 2006

A survey conducted by Factum Invenio has shown that half of the internet users who have not yet used the internet to search for information on public administration web sites, mainly people younger than 30 years with above average incomes, claimed that they had no need to do so. One third of internet users also stated that they did not use the internet for these purposes because they preferred personal contact. This primarily concerns older citizens, who do use the internet, but not to settle public matters. In addition, every sixth user claims that sending personal data over the internet is unsafe.

Figure 28: Reasons for not using internet for information searches related to public administration or for communication with public authorities (data in %, N=360)
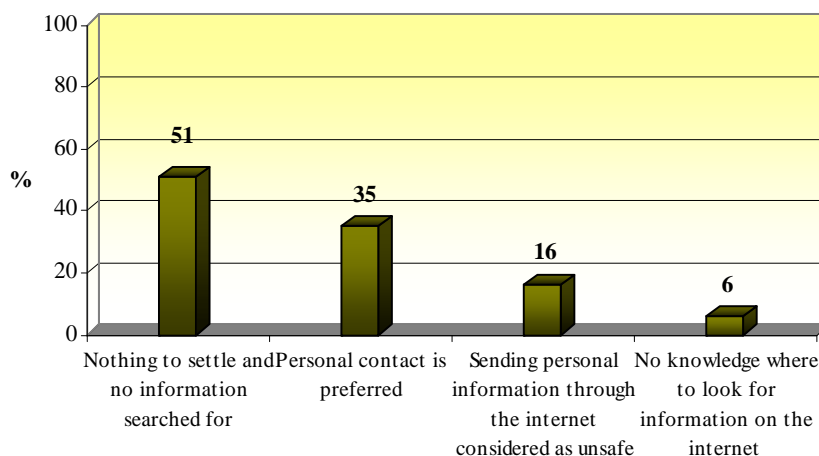
The Factum Invenio survey also demonstrates that the majority of people, who had already used the internet for the purpose of information searches about public administration, visited the web pages of regional, city or municipal offices (87%) or searched the contacts for one of the state institutions (76%). Moreover, users often visit the Portal of the Public Administration (76%), Companies Register (48%) and web pages of the Government, ministries and other state institutions (66%). On the other hand, the electronic submission of tax declaration through internet has not enjoyed a great deal of popularity (10%).

Figure 29: Reasons for visiting the web pages of public administration or authorities (answer YES in %, N=214)
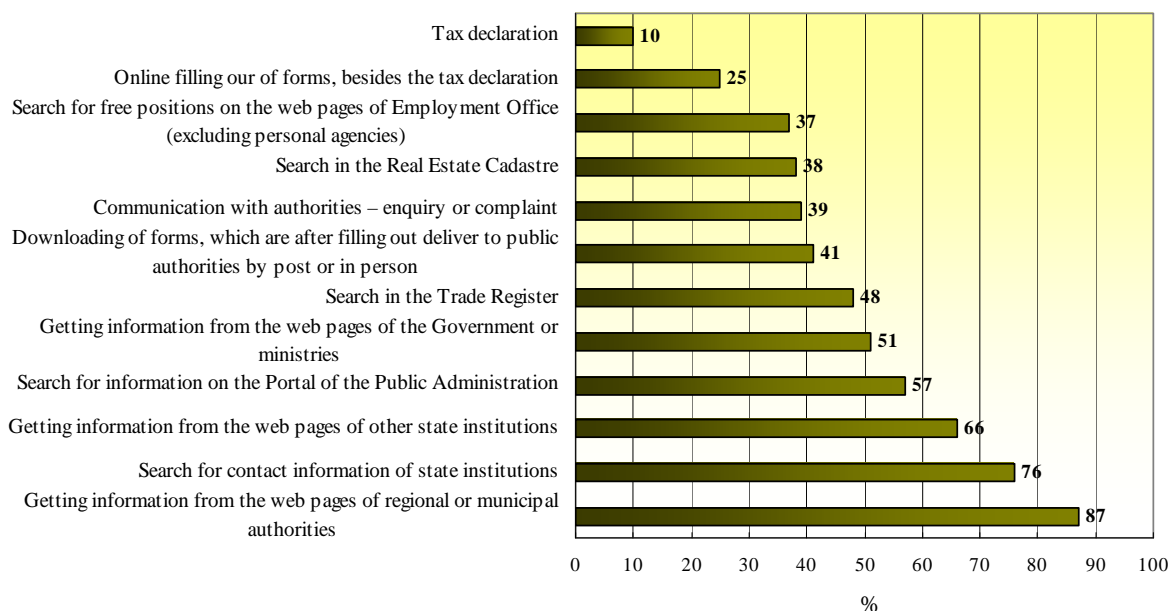
II.7.2   Electronic signatures

According the Factum Invenio survey, the electronic signature remains a vague concept for the Czech population. One fourth of people have no idea what an electronic signature is. Only 1% of the Czech population in above 15 years old has already used the electronic signature and an additional 12% have not used it so far, would consider using it in the future. About 87% of citizens consider the electronic signature unnecessary.

With regards to electronic signature, it is also worth noting that without it, no transaction between the citizen and the public administration can be conducted electronically. In almost all cases, citizens need electronic signatures for the purpose of communication with public administration, with the exception of the submission of information requests. Unless the citizens acquire electronic signatures, a more rapid boom of eGovernment is not to be expected in the Czech Republic.

Figure 30: Usage of electronic signature for communication with public administration authorities, total survey population (data in %, N=1030)
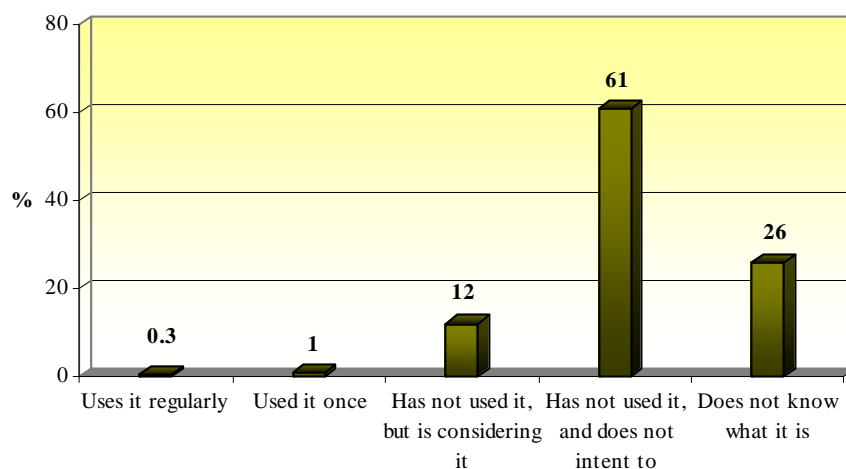
Source: Factum Invenio, 2006

II.7.3   Evaluation

When, in February 2003, ADSL was launched in the Czech Republic, the former representatives of the Ministry of Informatics claimed that this step would drastically improve the provision of eGovernment services in the Czech Republic. However, the introduction of this service did not result in any significant advancement, The price for ADSL has dropped in 2007 (from ca. CZK 1,500 to ca. CZK 400 – from ca. EUR 50 to ca. EUR 13), but there has been no significant change in eGovernment development.

The situation is similar with regard to the electronic signature. Previously, the price of an electronic signature equalled about CZK 700 (ca. EUR 23), and the Ministry of Informatics claimed that a significant decrease in the price of electronic signatures would accelerate the advancement of eGovernment in the Czech Republic. Currently, an electronic signature can be acquired for CZK 190 (ca. EUR 6.5), but there has not yet been an evident improvement in the progress of eGovernment evolution.

Unfortunately, the Ministry of Informatics did not choose an effective means of enforcing and implementing eGovernment services. It exercised pressure on electronic communication network providers and certification authorities to lower prices, but failed to focus on the provision of high-quality on-line services by the public administration. For that reason, the citizens now have relatively cheap access to the internet and electronic signature services, but they only have a few opportunities to make use of these instruments through electronic communication and transactions with the public

administration. Consequently, citizens do not have any incentive to purchase an electronic signature simply because they have no opportunity to use it.

It appears that the interest of citizens about eGovernment services does not depend solely on the internet availability, but predominantly on the quality of the offered services and its user friendliness.

II.8 The costs related to eGovernment and the impacts of eGovernment/eHealth developments

II.8.1 The costs related to eGovernment incurred by public and private sector

Unfortunately, there is no available information about the extent of costs imposed upon public sector budgets by eGovernment services, nor can the costs be reasonably calculated, as the state budget does not distinguish ICT items in budgetary lists. The state budget is represented by a general breakdown of sales, such as goods and services, without further specification of use. It is therefore impossible to determine if financial resources were used for ICT or for other purposes. This ambiguity is further amplified by the fact that users of individual budgetary sections spend the money from state budget on eGovernment individually, thus there is no coordination of the implementation of eGovernment projects, including the purchases of ICT technology. The situation is similar at the regional and municipal level.

The amount of private sector expenditures on eGovernment is neither monitored, nor can it be determined.

For the purposes of this study, the Ministry of Informatics was contacted as the party responsible for the coordination of information technologies. However, the Ministry was unable to comment upon these issues.

II.8.2 The impact of eGovernment on employment

It is difficult to monitor the direct impact of eGovernment on employment. Current eGovernment applications remain consistent with "traditional" bureaucratic procedures; for example, conversion to eGovernment applications has not been universal and has been limited to interested end users. Therefore, the effect of eGovernment on financial savings due to personnel reductions in public authorities cannot be determined. According the CSO data, there was a a significant increase in employment in the public sector from 282,000 people in 2002 to 300,000 people in 2004 and even to 320,000 in 2005, which may be due to the widening agenda of the public administration and in extension of public administration in general. The introduction of electronic procedures surely leads to more efficient operation, which results in the personnel reductions, but as has been shown, lately the number of employees in the public administration augmented.

The electronic labour markets available at the portal of Ministry of Labour and Social Affaires (portal.mpsv.cz) are exemplary models of the evaluation of the effect of eGovernment on employment. The primary goal of the server was to build up an electronic labour market in the Czech Republic. The electronic market provides a software solution that ensures that information regarding the employers' needs with respect to the labour force and those of job-seekers are efficiently interrelated through an assigning mechanism that enables matching labour supply to labour demand.

Between January 2005 and January 2006, the visit rates of the electronic labour market increased by more than 500%. The operators expect to maintain the growth rate the year 2006. It is estimated that the number of displayed pages, which were 5.4 million in January 2006, will escalate to a minimum of 10 million in January 2007. However, even more important than the number of displayed pages is the significant increase of employer interest in announcing and retaining free positions. There has also been an increase in the number of advertisements submitted by job-seekers. The target increase in the number of advertisements is to a minimum of 50,000 from the current number of 4,000.

II.9 The tools used by stakeholders for assessing the impacts of

eGovernment and/or eHealth initiatives, projects and tools

II.9.1   Audits in the public administration

Financial audits

As the central administration authority, the Ministry of Finance occupies the highest rank of the public finance administrative bodies in the Czech Republic and has authority over their financial management. It oversees the administration and financial relations of management and regulatory processes of the administrators responsible for the national budget, regional self-governing units and other public sector bodies with a direct link to the national budget. This procedure is not entirely successful in satisfying its duties in achieving the target goals of the financial management and control system, ensuring the existence of a system of internal audit and the central harmonization of both of these systems.

The second level of Czech public administration responsible for the financial management and control of state budget chapter resources oversees administrative duties and financial relations pertaining to the management and control over public sector entities, individual applicants and recipients of the public financial support with a direct link to a particular budget head.

On the first level of the financial management and control, the responsibility for the management of an approved budget is in the hands of a public sector accounting unit. It includes the management and control of processes inside the public sector entity when executing the operation of internal organizational units and departments. The complexity of the financial management and control is in a large number of cases similar to the complexity of processes within the financial management and control on the level of the state budget chapter administration.

Organizational, functional and process audits

This type of audits is not carried out in the Czech public administration. Up to this day, only two ad hoc pilot audits of this type were executed at the central level: one of the Ministry of Finance and the other of two independent regulators, the Czech Telecommunication Office and the Council for Radio and Television Broadcasting.

Legislation audits

This type of audit is not used in the Czech public administration and as of yet no such audit has been executed.

The think tank eStat.cz has launched an initiative regarding legislation audits and has submitted a bill also as Tošovský's Act ensuring protection against an excessive bureaucratic. ODS, the strongest political opposition party has embraced the Act, which, after its ratification, would impose an obligation on the government to undertake a legislation audit cyclically every two years.

II.9.2   Evaluation of the impacts of the government and authorities

There is no evaluation of the impacts of the government and authorities in the Czech Republic. The government approved a plan on the inclusion of a method of impacts evaluation into the process of regulation preparation (RIA). However, as of yet, this plan has not been implemented.

The eStat.cz initiative, the aforementioned Tošovský's Act intended to provide protection against an excessive bureaucratic load, should after its ratification implement the impact evaluation of each newly implemented measure including:

> ➢ The definition of the objective of the submitted measure,
> ➢ An explanation of why the goal cannot be reached by independent decision-making on the part of free subjects or by other self-regulating mechanisms,
> ➢ A list of the expected positive impacts of the submitted measure based on a profound risk analysis,
> ➢ A list of the expected negative impacts of the submitted measure, including the impacts on citizens, entrepreneurs, self-governing units and the state administration,

> ➢ A comparison of the measure with other possible solutions for the problem, including maintaining the *status quo* and the absence of state interference into subjects´ decision-making regarding private legal relations.

II.9.3   Ex post examination, evaluation of the eGovernment politics

There is no ex post examination, evaluation of eGovernment politics performed in the Czech Republic. Neither does the systematic evaluation of eGovernment services and audits of eGovernment takes place.

II.9.4   Impacts of eGovernment on state administration reform

Even though eGovernment is currently not prevalent in the Czech Republic, there has been significant progress in some areas, such as tax administration or social security. However, it is not evident that the eGovernment development is necessarily accompanied by public administration reform. The description of eGovernment in the Czech Republic found in previous chapters has revealed a rather cheerless situation. In the last years the number of employees in the public sector has increased, but the increase was not associated with the regulatory impact assessment; personal and organisational audits were only marginally performed, not to mention legislative or agenda audits.

II.9.5   Net benefits from the expansion of eGovernment

Net benefits from eGovernment expansion consist primarily of the possibility of increasing the amount of available information regarding public administration. Given that the eGovernment transaction services is in a rather disconsolate state, information services such as the publication of information on the internet web pages of individual authorities or through portals lead to substantial progress as far as the quality of services offered by the public administration and the openness of authorities towards citizens is concerned. That each authority is required to produce parallel official boards in both a traditional format and an electronic format on the internet can especially be seen as a positive development. Other positive developments include the publication of the section *Life Situation* as well as instructions on solving relevant problems, the possibility of submitting information requests to the authorities in an electronic form or the availability of online searches in the Companies Register or in the Real Estate Cadastre. The research of the company Factum Invention released in January 2006 has proven that citizens use this kind of eGovernment services. It reveals that the majority of people who have already used the internet for the purpose of getting information about the state administration have visited the web pages of regional and municipal authorities (87%), or have searched for contacts of some state institutions (76%). A relatively popular web target of users is the Portal of the Public Administration (57%), the Companies Register (48%) and internet web pages of the Government, ministries (51%) and of other state institutions (66%).

II.9.6   eGovernment growth in relation to extension of ICT usage

Lamentably, eGovernment in the Czech Republic does not yet have sufficient strength to lead to a more extended usage of ICT within the population, a fact proved by the reluctance of internet users to use electronic services in searching for information related to the state administration. Only 8% of internet users utilize the internet for the aforementioned purpose with certain regularity. In contrast, 42% of internet users do not even plan to use this service in the future. There is an alarming scepticism of electronic services provided over the internet. This is even more remarkable, considering that the percentage of electronic services users is not derived from the whole population, but from internet users, who are undoubtedly computer literate.

If we consider that only 0.3% of citizens of the Czech Republic over 15 years of age use the electronic signature repeatedly, which is a necessity in the application for the process tasks with public authorities, it is obvious that citizens use the eGovernment services only marginally and the supply of high quality eGovernment services is not a sufficient motivation for the wide spread use of ICT. Regardless of the fact that citizens have relatively low-cost access to the internet and electronic signatures, they have only a few opportunities to use it for the purposes of communication and

transactions with public administration. Thus, they have no incentive to acquire the electronic signature, because they simply would not use it enough to compensate for its costs.

The expansion of ICT in the public administration was in the past supported by Act No. 440/2004 Coll., which enacted the amendment to the Act on Electronic Signature. On the basis of that act, every authority, including the smallest municipalities, has to operate an electronic registry. Hence, they were forced to allow citizens to conduct at least the basic communication (such as dealing with the requests demanding the provision of information) electronically.

II.9.7 Other impacts of eGovernment

With respect to the level of eGovernment in the Czech Republic it cannot be assumed, that the sole eGovernment services would have any material impact on eInclusion, eDemocracy or digital divide.

III ASSESSMENT OF THE CURRENT DEVELOPMENTS AND TRENDS, SPECIFIC BOTH TO E-GOVERNMENT AND E-HEALTH

III.1 Current state and the directions of eGovernment development – achievements and shortcomings

The first service that Czech citizens had an opportunity to use in electronic form via email was the submission of request for information, implemented in 1999 according to the Act on Free Access to Information. In 2000, a statute of electronic signature was implemented into the Czech law, which should have enabled the Czech citizens to communicate with public authorities electronically. Unfortunately, it took almost 18 months until the supporting legislation was issued and the actual use of electronic signature was put into practice. With respect to the introduction of electronic signature, the amendment of the Code of Administrative Procedure enabled the use of electronic communication in a number of administrative agenda. Many state bureaus were not prepared for this proceeding and therefore did not operate electronic registries, which is a precondition of the use of the electronic submission.

In 2000, an amendment was adopted that should have enabled the coordination of information systems in the public administration by the newly established Office for Public Information Systems, which would have allowed systems to mutually communicate and exchange data.

In the same year, the Office for the Protection of Personal Data was established, the competence of which is to supervise the handling of personal data.

A further change occurred on 1 January 2003, when the Office for Public Information Systems ceased to exist and the newly established Ministry of Informatics took its place. The Ministry focused on its front office and began to redesign the framework of inter-Ministry procedures to correspond to the legislation proposed by the Government. The Ministry concentrated on the idea that if an act was to be amended by a process of procedural act of submission, it should have been amended in the way enabling to execute the act in an electronic form. Unfortunately, the Ministry did not create the means for executing the process acts when it is necessary to submit additional attachments with the submission, and the attachments existed in a paper form only. The strong stress on the front office was conveyed by measurable "quick wins" and political statements by the then Minister of Informatics, who declared in October 2002 at the INVEX fair that his target was to make 25% of the agenda of public administration available online by the year 2006. It is worth noting that today in 2006 there exists, for example, only ca. 550 kinds of submissions in various agenda at the municipal and regional level. Out of these 550 submissions only 10 may be executed purely electronically. In other cases, barriers exist, either of legislative nature, where the legal prescriptions do not recognise the electronic form, or of pragmatic nature, where the technical and security capabilities of authorities do not allow for settling the given agenda.

At that time, the Ministry of Informatics underestimated the role of the "back office", paying only limited attention to it. When an authority obtains, via electronic registries, a document in an electronic form, the responsible clerk prints the document out and deposits it into a folder. The document then circulates in the hard copy only. Unfortunately, this procedure was not overruled, even by a new Act on Archival Science and Documentary Service elaborated by the Ministry of Interior. On one hand, the act enables the usage of file services in an electronic form, yet on the other hand, it gives preference to the material form over the electronic form. The authorities themselves retain the option of keeping the files in hardcopy format and paper documents which "circulate" around the offices and ministries.

Additional problems with data sharing among single state registers also betray the sorry state of the back office affairs. A number of legal documents are not entirely adaptable to the electronic format in a register, although a number of them are in fact kept in an electronic form. The data in an electronic form are in almost no cases considered to be legally binding. The locations where registration, filing or

entries into evidence takes place are also very fragmented. The used systems often do not communicate with each other – sometimes even within one authority – and furthermore, often the systems are not supported by quality IT equipment.[29]

For instance, the State Social Support became part of the Unemployment Office, but the data from both their registers could not be shared, despite the fact, that they are very similar. In the past the Unemployment Office could not give out the data about the people looking for jobs to the potential employers.

Even during the first year of its existence, the Ministry of Informatics totally halted the work on the security of data sharing between individual registers and devoted its efforts to front office projects and the formation of the Portal of the Public Administration (PPA), which became the Ministry's flagship during that first year. It should be noted that the PPA became a kind of notice board for getting information from public administration and about the public administration. Because it is impossible to share data in the public administration, the data designed for the PPA had to be specially created on demand. Data sharing takes place even despite the fact that the PPA makes public data that is already at the disposal of the public administration. In 2004, the Ministry of Informatics tried to resume work on data sharing between individual registers. Even the Government, by its Resolution No. 1064/2004, approved the legislative intention (the outline of a law under preparation) on data sharing within the public administration. In this legislative intention, the Ministry of Informatics even prepared a written legislative proposal. However, it was too late to put through the legislative changes before the end of the functional election period. Furthermore, the proposal did not receive the necessary support from the Legislative Council of the Government and was therefore not included in the Cabinet meeting agenda. The new government to be formed after the upcoming elections will then have to deal with the development of data sharing between individual registers from scratch. While the government will have at its disposal a partial and provisional foundation in the analysis and proposal of the Territorial Identification, Address and Real Estate Register which was approved by the Government Resolution No. 1306/2005 and the Economic Register proposal, which was approved by the Government Resolution No. 562/2006, these documents are nevertheless still in the preparatory phase in the form of intentions or studies and their implementation into legislation, and consequently also into daily life, will not be immediate, because the government must first garner the support of the competent public.

Besides the above stated activities, the Ministry of Informatics prepared and enforced several legal amendments, such as the Amendment on the Act on Electronic Signature, which entailed an obligation on all authorities to operate electronic registries and introduced the "electronic mark" or the Amendment of the Act on Information Systems of the Public Administration whose impacts will become effective in the future.

Besides the abovementioned legislative steps, the Ministry of Informatics also prepared the State Information and Telecommunications Policy, the Broadband Strategy and the National Information Security Strategy. It also devoted a great deal of energy to projects such as the National Program for Computer Literacy, Library Internetisation or the provision of e-signatures to municipalities.

Due to the limited role of the Ministry of Informatics on eGovernment implementation, the roles of other ministries are worth mentioning. Each ministry implements its own eGovernment applications individually with varying intensity, and the extent to which each ministry devotes its efforts to electronisation often depends on the political will of individual ministers to whose competences the relevant agenda belongs. The enthusiasm of the IT employees in the given ministry and the ability of political representatives to secure the financial resources from the state budget for the financing of projects also has a significant impact on the electronisation of the relevant agenda.

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[29] The term quality IT equipment is referred to up to date equipment with PCs that can easily work with the XP Windows, MsOffice and other software applications. However, this standard is not always the case at public authorities, as still at some of them ca. 10 year old PCs are used. This conclusions on the status of the quality IT equipment at public administration were also presented in the non-approved legislative proposal on Data Sharing which was prepared by the previous government.

Due to the fact that there is no unified coordination of the eGovernment process and that there is a preservation of a strict sectorial approach, it is possible to categorise the level of eGovernment services in line with the services evaluated by IDABC.

1. The most advanced level of eGovernment in the Czech Republic, with respect to the potential limits given by the current legislation, is manifested in services relative to tax and social contributions provided by the Ministry of Finance and Ministry of Labour and Social Affairs, including the Czech Social Security Administration.

2. A less developed level of eGovernment in the Czech Republic, with respect to the potential limits given by the current legislation, is evident in services provided by the Czech Statistical Office, Ministry of Justice or Ministry of Industry and Trade.

3. The least advanced level of eGovernment in the Czech Republic, which concerns only the publication of information and instruction, and possibly also non-interactive fill-out forms, with respect to the potential limits given by the current legislation is apparent in services provided by the Ministry of Interior, Ministry of Transport, Ministry of Health, Ministry of Environment and Ministry of Regional Development.

4. The fourth, independent group is the evaluation of the level of the eGovernment in the Czech Republic with respect to the potential and limits given by the current legislation. It can be identified by the services provided by either local authorities or the degree of individual liability of the provider of the service. We may identify cases when the specific service is offered by a provider in a fully electronic form as well cases when the same service is provided by a different provider in a non-electronic form.

Given its limited position and competences, the Ministry of Informatics could not really fulfil its roles and goals as was planned by at its foundation in year 2002. ThusI, in the new government formed after the elections in 2006, the Minister of Interior was charged with the task to prepare the abolition of the Ministry of Informatics and to take over the agenda related to eGovernment development and information systems of public administration.

This overall criticism of past developments in the eGovernment and eHealth fields, as well as of the policies and actions of Ministry of Informatics, was in general confirmed in the interviews with various stakeholders, in particular by the representatives of the Ministry of Informatics, Ministry of Interior, Ministry of Labour and Social Affairs and the heads of department of informatics at selected regional authorities, or by the representative of Telefonica O2 (former Czech Telecom).

eHealth

The development in the field of eGovernment can be applied to eHealth as well and in addition, it determines the eHealth specific issues. Besides, eHealth has been affected to a great extent by frequent changes in political representation at the Ministry of Health during past years (see also Chapter II.).

Nevertheless, in the healthcare sector the trend towards a greater use of ICT tools in communication and increasing the efficiency is incontestable for modernisation of health services provision, and well recognized in the Czech Republic also among the public experts (see the long list of successful projects in the Chapter II.2.3). However, the debate begins, when it comes to issue, how the tools provided by eHealth shall be used and what exactly shall the tools serve for. As in previous years there was a lack of nation wide strategy for the healthcare sector in general, initiatives were often carried by other health sector stakeholders, regions being among players. This causes a sector strategy fragmentation in some sense (see details in later chapters).

There have been many attempts and pilot studies to introduce new eHealth tools in the Czech Republic. Projects including some pilot studies of eHealth that have been worked up are described in detail in Chapter II. Though there are many projects that were either put on hold by the MoH or the MoH have contracted out of them, in general, there also exist eHealth applications and services that represent quite an achievement. (such as IZIP, eHealth applications by the HZP health insurance

company, etc.). This includes issues such as relationship and communication of health insurers with healthcare providers, payers and also with policyholders. Such communication is today usually based on the existence of unified data standards for claims, reimbursement and insurance premium collection. However, in other parts of the health sector, unified data standards are still missing (see later chapter). Newly appointed top executives of Ministry of Health (September 2006) are trying to change the situation and to put those bottom up initiatives as a part of their policies.

On the other hand, significant shortcomings for further development of eHealth projects are represented for example by the inexistence of standardized tools, adjusted to healthcare specifications, to evaluate impacts or outcomes of eHealth initiatives. This type of shortcomings will require somewhat more time to eliminate it.

III.2   Impact of various factors on eGovernment/eHealth development

Impact of economic factors on eGovernment/eHealth development

The impact of economic factors is reflected in the situation of the authorities responsible for eGovernment development. It is no coincidence that the more mature eGovernment applications were developed in economically strong units such as the Ministry of Labour and Social Affaires and the Ministry of Finance. However, no cost-benefit analysis were performed to evaluate the benefits and cost of developing costly applications, which in some instances lack the rationale (e.g. the unemployed and people in need may ask for social payments on internet, but have to first obtain an electronic signature. With respect to the high costs only a minimal number of applicants used this application). Furthermore, the project based financial resources that could be used for cross-departmental projects are missing. Each department of informatics at various ministries must fight for the additional resources for their specific projects from the general ministerial budget. Usually, the attributed amount of funds for IT departments is deemed insufficient.

The Ministry of Interior is also an economically strong department, but in its policy gives priority to issues other than eGovernment. Furthermore, the Ministry of Interior transfers the execution of separate activities in the framework of so-called transferred competences to the municipalities and regions, but without financially covering the administration of individual agenda related to self-governing units. The units then must pay for the administration of agendas from their own resources. Therefore, the Ministry of Interior is not forced to cost cutting and to operate more efficiently by the means of ICT implementation.

With regards to healthcare, economic factors affecting eHealth solutions are influenced by the organization of the Czech healthcare system, which is based on multiple public health insurers, whose capital spending on ICT is limited by the availability of funds for internal purposes (a ratio of the total insurance premium collected, which is set by law). There exists also a lack of coordination of capital intensive projects due to the fragmented nature of the health insurance, which is divided among 9 public insurers, and the near absence of proactive policy in this sphere on the part of MoH in recent years (see comments above).

From the citizens' point of view, it cannot be concluded that economic factors would have direct impact on the usage of eGovernment services. The significant price reduction in both broadband internet access and the issuance of qualified certificates for the secured electronic signature have not led to a massive development of eGovernment. Hence, from the citizens' point of view, it is more likely that the need for the adequate coverage of available eGovernment services, which would give citizens an incentive to purchase a qualified certificate for the secured electronic signature, has a major role in eGovernment development than economic factors. Also other factors, such as the provision of services through one unified usage interface, which would prevent the user from having to learn how to work with plenty of applications, appear to be more important. With respect to eHealth, there are no specific cost deterrents on the part of end users, as the available services are provided free of charge by the respective public health insurers and there are no plans to introduce additional services with user fees.

An important economic factor is the aim of ICT companies to maximise the sales of their own technology solutions in combination with the attitude of individual (public) authorities to act independently of other authorities and wanting to manage solutions on their own. As a consequence, each (public) authority introduces its own unique IT systems and infrastructure despite often the availability of equivalent solutions. As a result, ICT companies succeed in selling the same system solution a number of times to the state bodies, which is in conflict with coordinated approach of public resources spending. That leads to enormous ICT spending of state authorities, which decreases the availability of resources for implementation of individual projects and for efficient operation of eGovernment services.

Impact of legal factors on eGovernment/eHealth development

The impact of legal factors on the development of eGovernment/eHealth appears to be probably the most striking one. In the Czech Republic there are numerous legislative impediments that hinder eGovernment development. These range from the unequal legal status of documents in paper and electronic form, to the lack of legislative regulation of personal identification numbers, to the failure of data sharing between the registers of public administration, ending with the fragmentation of process regulation, in both administrative procedures and legal regulations.

The length of the individual legislative process, which lasts about 18 months in the CR, constitutes a serious problem, as well. The enforcement of new regulation regarding eGovernment is markedly more complicated. For instance, the process of the enactment of the Amendment to Act on Information Systems took two and half years. As that process concerned only the enactment of an amendment, one can suppose that the enactment of totally new legal regulations would last even longer. Such delays can have problematic impacts, especially given the four-year cycle of government.

Impact of policy factors on eGovernment/eHealth development

The impact of policy factors on eGovernment can only be estimated. In the CR, the regulatory impact assessment of individual policies does not take place. However, one can find an indication in programs such as the National Program of Computer Literacy, which was attended by ca. 150 thousand people. The majority of successful course participants were older than 40 years and most participants fell in the age category of 51-60 years. A number of them were signed up for the course by their employer. Due to the fact that the courses include training related to the PPA, it can be expected that several course participants will use services offered by the PPA in the future.

Further developments, as the National Broadband Strategy, have been only recently implemented and hence cannot be properly evaluated.

Nevertheless, it appears that the impact of policies on eGovernment evolution is rather small. There is a stress on relevant ministries, the way in which they will face the implementation of eGovernment instruments and which policies are currently underway. The differences in the levels of quality of eGovernment services provided by various authorities support this conclusion.

Impact of political factors on eGovernment/eHealth development

Political factors influencing the development of eGovernment are very strong. Their impact is especially evident in the weak position of the Ministry of Informatics, which was unable to administer and coordinate particular eGovernment projects on its own. Each ministry implements its eGovernment applications separately and with different intensities in implementation.

eGovernment development was negatively affected by the instability of the government during the last four years. During the last four years, three different governments were active in the Czech Republic, and there were two different ministers at the head of the Ministry of Informatics.

As indicated above, eHealth applications have been adversely affected by unusually frequent changes at the Ministry of Health, with the average "tenure" of a minister lasting around 18 months since 1990. This is probably the single most important deterrent to the evolution of a coherent nation-wide long-term policy in the field of eHealth in the Czech Republic. The main factor contributing to this phenomenon is the lack of a sound financial framework in the Czech healthcare in general, which

caused periodic financial distress, followed by protests of physicians and healthcare providers and subsequently to the dismissal of the Minister, which was the reality of the past 8 years. This is also one of the reasons that lead to the development of regional governments' own plans and strategies for healthcare sector, which influenced eHealth projects development on the regional level. An important political factor on eHealth development is also the distribution of power between the MoH and individual regions when it comes to healthcare facilities. As regions are owners of a significant number of hospitals, development path of these healthcare providers does not necessary follow the MoH's view on health sector strategy, including eHealth.

Impact of ethical factors on eGovernment/eHealth development

Ethical factors influencing the development of eGovernment are most apparent in the field of public tenders. In 2002, the government issued a resolution according to which all purchases of ICT up to CZK 2 million (ca. EUR 65 thousand) should be realized through electronic market places (tenders up to CZK 2 million are not regulated by the Act on Public Procurement and it is the decision of the submitter as to the method of realisation of tenders as well as the degree of transparency). In a number of cases, state authorities started to realize purchases through these market places and as a consequence there was a significant decline in prices of purchased commodities. Regrettably, this was not always the case. Probably the single most important project in the eHealth field, internet based electronic health records (IZIP) funded by the largest health insurer GHIC, became a source of administrative proceedings by the Czech Antimonopoly Office (ÚOHS), who accused the GHIC of violating the Czech Public Procurement Law when the GHIC entered into a contractual agreement with the IZIP project implementation company without a competitive public tender. ÚOHS fined GHIC for the infraction in the spring of 2006. GHIC appealed against the verdict; by the end of 2006, no final decision in the appellate proceedings was made.

In the Chamber of Deputies, proposals were put forward for public tenders up to CZK 2 million (ca. EUR 65 thousand) to be realized transparently through electronic market places. Unfortunately there was not sufficient support for this initiative. Nevertheless, the new Act No. 137/2006 Coll. on Public Procurement can be seen as a positive step forward, as it should make it possible to introduce electronic tools into some public tenders.

Impact of technological factors on eGovernment/eHealth development

The impact of technological factors on the development of eGovernment is evident in the problems connected to interoperability and incompatibility between particular information systems in public administration. When each ministry/municipal authority implements its own information system without a connection to other information systems, not only does it lead to higher costs, but each data entry is also administered concurrently in several information systems without any linkage. As a result, the execution of public administration is inefficient and there are numerous errors and differences in registered data.

The problem consists in the impossibility of data sharing between particular registers and the non-existence of unified reference interface between particular information systems, which renders mutual communication impossible. The Ministry of Informatics can issue standards for information systems of public administration. However, the issued standards were often only general technical guidelines through which it was not possible to solve problems of interoperability between particular information systems.

The above mentioned factors have had a very negative impact on further development of eGovernment. The technical problems can surely be dealt with, through "bridge connections" between the currently not compatible systems with different reference interfaces, but at a high cost. .

An insufficient use of open formats in the public administration could also be named among technological factors. A number of authorities still save their documents in the Microsoft Office formats. This limits access to electronic documents at public administration for many citizens. The most striking consequences can be noted in case of documents older than 10 years.

Technological problems occur also in cases, when some authorities are not integrated in the communication platform of the public administration as they have developed their own communication platform. As a result, the authorities serving as end-user communication points of public administration operate on different communication platforms including different end connections. Eventually, the issue technically hinders a public authority employee to have an access from his/her PC to all agendas of public administration.

With respect to eHealth, a similar lack of coordination is demonstrated in the following example of the two competing National Reference Centres. Health insurance companies developed their own internal information systems, based on data standards developed by the GHIC for reimbursement of claims of care providers, which are not interconnected. To overcome this problem and support data dissemination, the health insurers have created the National Reference Centre (www.nrc.cz) with a unified data standard. This was also intended to support the implementation of the DRG payment mechanism (a prospective per case payment mechanism) of health insurers for care provided by their contractual healthcare providers. The data collected could be used to disseminate information on quality and costs of care. However, as of May 2006, the regular release of fully-fledged information services has not begun, although the NRC did release data on maternity wards in 2005. To add to the confusion, a separate National Reference Center (www.nrc.ipvz.cz) under the purview of the Institute for Postgraduate Medical Education (IPVZ) of MoH was established in 2003, again to facilitate the roll out of a DRG based prospective payment system. As of February 2006, this second NRC has been absorbed into the MoH as a separate unit within Department of Informatics. The MoH intends to use the data for benchmarking and evaluation purposes of the subordinated healthcare providers, mainly teaching hospitals. Currently (March 2007), the MoH cooperates with health insurers on a transformation project that will put an end to this contradictory situation where the two NRCs exist. The main and only NRC, in its original meaning, shall remain the NRC established by the health insurers, with the MoH taking an active part in the project and participating in the newly designed NRC's supervisory bodies.

Impact of socio-cultural factors on eGovernment/eHealth development

The impact of socio-cultural factors on the development of eGovernment/eHealth is evident in the amount of pressure that a certain part of the population exerts on implementation of ICT. This population segment considers using ICT as a sign of modernisation and for that reason tries to keep pace with technological advancements. Because they use ICT for communication both at work and in everyday life, they also desire to use of modern technologies and up-to-date instruments when communicating with public authorities. Conversely, there is also a segment of the population with a totally opposite attitude; they reject modern technologies and prefer to adhere to well-established procedures and instruments that have been in place for several decades. This group of people is particularly averse to the implementation of ICT not only into their own life, but also into other areas that directly concern them, specifically the communication of citizens with public administration bodies.

Impact of regional factors on eGovernment/eHealth development

The impact of regional factors on the development of eGovernment is apparent in statistics regarding the regional distribution of internet user that use office web sites to search for information. While the internet is used to communicate with the public administration by 51% of Prague citizens, it is used by 19% of users in the Zlín Region and by 20% of users in the Vysočina Region. The reasons for these differences in behaviour could probably be traced back to the differences in the availability of ICT access, the internet coverage and lower computer literacy of inhabitants in these regions. A high level of concentration of public authorities in Prague and consequently a more intense need to contact the authorities could also play its part.

Impact of demographic factors on eGovernment/eHealth development

Significant differences in computer literacy can be identified between young people (15-17 years) and people in the non-productive age group (above 60 years). While 8% of young people do not have PC knowledge, this indicator rises to 86% among elderly people.

These data are used to support the argument that the services provided for citizens at the front office should exist concurrently both in electronic and common paper form for several more decades.

III.3 Analysis of drivers and barriers in eGovernment/eHealth development

Table 14: Drivers and barriers in eGovernment/eHealth development

Factors	Drivers	Barriers
Economic factor	1. Cheap internet connectivity 2. Cheap acquisition of electronic signature	1. Lack of financial sources for the Project of the Internetisation of Regions 2. Various priority levels of particular ministry in the establishment and funding of eGovernment services
Legal factor	New legislative activities triggered (e.g. the recently prepared legislation on central registers)	1. Unequal legal status of documents in the paper and electronic form 2. Non-existence of legislative regulation of random personal identification number of citizens 3. Impossibility of data sharing between particular registers of public administration – there exist legislation barriers hindering data sharing, even though it is technologically possible 4. Fragmentation of process regulation in administration procedure
Policy factor	1. National Broadband Access Policy 2. National Program for Computer Literacy 3. More proactive policies by the new Government	1. Until recently lack of coherent eHealth policy at the Ministry of Health 2. Often antagonistic, uncooperative relations between MoH and the public health insurers. 3. Lack of coordination of eHealth policy within MoH until recently
Political factor	The improved set-up of ministries that puts eGovernment among its priorities to tackle the bureaucracy issue	1. Weak position of the Ministry of Informatics and its political representatives 2. Government instability 3. Extraordinarily frequent changes in the position of Minister of Health
Ethical factor	New Act No. 137/2006 Coll. on Public Tenders, which should make it possible to introduce electronic tools into some procedures	Aversion of the staff of public offices towards transparent tools in public tenders submission
Technological factor	Increasing access of public administration bodies, companies, citizens and other players to internet with broadband connection	1. Incompatibility and non-interoperability between particular information systems in public administration 2. Non-existence of unified reference interface 3. Non-existence of one user interface for communication with public administration. Each eGovernment application has its own specific interface.
Socio-cultural factor	Part of the population considers ICT use as a positive and modern phenomenon	Resistance of part of the population to use of ICT instruments
Regional factor	National Broadband Access Policy, which should facilitate implementation of projects focused on broadband support in regions where there are problems with its unavailability	Fragmentation of regional solutions
Demographic factor	National Program for Computer Literacy	Low level of computer literacy of the people above 60 years

IV. ANALYSIS OF THE POSSIBLE POLICY OPTIONS AT VARIOUS LEVELS

IV.1 Policy measures at various government levels

IV.1.1 Central (national) government

eGovernment

Recently, the weak position of the Ministry of Informatics with respect to other ministries made it very difficult to enforce its plans and projects, which was not only evident in its attempts to establish and define various policies, but also in their consequent implementation and realisation. The Ministry of Informatics was additionally weakened by its relatively low budget, which did not allow it to back its long term strategies with sufficient financial resources. The Ministry's attempts to enforce of policies at the governmental level by the Ministry of Informatics did not automatically lead to their successful implementation, primarily because the financial resources that were supposed to be drawn from the budgets of individual ministries were unavailable, and could not, therefore support the implementation of the strategies. As a consequence, a number of goals of the *State Information and Communication Policy – eCzech 2006* were not met and, furthermore, eGovernment services, which are subject to the competencies of various ministries, remain at a varying level of quality and development.

However, the author believes that if effective steps were taken to create an optimal environment for the supply of eGovernment services, this would lead to more transparent and simplified public administration processes and make them more user friendly and improve their quality.

On the whole, it is necessary for the government to develop an overall concept of eGovernment development in the Czech Republic. The current concept does not tackle specific problems, like, for instance, the interface inter-connection of the systems of self-governing units with central authorities, the concept of data sharing etc.

Consequently, inter-ministerial projects supported by project-based financial resources following the three step approach (concept, budget and execution) could be the best way forward. Overall, the general consensus is that political factors, particularly garnering political support, will be decisive in the future development of eGovernment in the Czech Republic.

eHealth

As shown in chapters II and III, the Czech healthcare sector is organised around nine independent public health insurance companies. Although the State, represented by the Ministry of Health, plays a much wider role in the organisation of the sector than just a regulatory and controlling body responsible for the provision of public health services, it has limited means of directly implementing some specific eHealth projects. This is due to the nature of the social health insurance system, in which health insurance companies are responsible for the accessibility of health services to their enrolees and health insurance budgets are independent of the central state budget, although the central budget contributes to them on behalf of economically non-active people.

The State would be well-placed to implement eHealth projects in the fields of public health promotion and education, as well as country-wide projects focused on promoting the overall quality of health services, including the electronic identification of health professionals, registrars. However, many eHealth projects, like the introduction of electronic medical records, the electronic identification of enrolees through the smart card, the interoperability of information systems among healthcare providers and data sharing, etc., remain the responsibility of health insurers and healthcare providers.

In addition to duties on the central level, the general government can involve itself in eHealth projects as a founder or owner of major hospitals. This concerns regional governments as well as the Ministry of Health, which has direct control over some hospitals, too.

In addition to the direct involvement of the central government in some eHealth projects, it indirectly influences all eHealth development through its attitude towards the orientation of the whole healthcare sector.

The main role reserved for the central government in eHealth projects is the promotion of eHealth as a solution to many current health sector shortcomings, and is actually twofold. First, it concerns the initiation and coordination of country-wide projects or projects that require a common interface to exchange data with the public administration. Secondly, it involves projects related to public health protection, healthy life-style promotion and education, emergency service provision, and others.

As has been indicated, the lack of a coherent central healthcare policy is the most important impediment to healthcare sector development, including eHealth development. All stakeholders, including health insurers, healthcare providers, and patients, call for the development of a clear, yet complex, plan that would solve uncertainty about the future orientation of the whole system, particularly concerning centralisation and decentralisation. Currently, the willingness of stakeholders to actually implement eHealth projects is weakened by the lack of benefits they can potentially receive from system improvements. As mentioned in several interviews with experts, health insurance companies do not see any added value they could receive from investing in eHealth projects, nor do they see any competitive advantage this could bring them.

The development of ICT usage in the healthcare sector can be stimulated greatly by motivating patients, hospitals and health insurers to demand and use various information. This concerns information on, for example, patients' own health services consumption, healthcare providers' claims with respect to insurers, the quality of care of different healthcare providers, or services offered by different insurers to policyholders, including the guaranteed accessibility to health services secured by a network of their contractual providers. The health system users will certainly demand such types of information more often if components of competition, both among insurers as well as among healthcare providers, are strengthened.

For a more detailed treatment of possible policy measures of the central government, see section IV.2.

IV.1.2   Regional governments

eGovernment

From the distribution of legislative powers and competencies it follows that the scope for policies at the regional or local is very limited in the Czech Republic. The legislative power is concentrated at the central level and the regions or municipalities can only influences the eGovernment policies in respect of the regional/local administration, regional/local development, primary and secondary education, public regional and local transport, tourism and partially environment and waste management.

The legislative measures are crucial for the progress in eGovernment at the regional level, as well. Without the proper legislation no breakthrough eGovernment applications will be developed. Otherwise the developed applications could not be implemented due to non-existing legislation. It is a vicious circle, as missing legislation leads to disapproved project finances which in turn results in the missing provision of appropriate eGovernment services. Similar arguments can be found also in the manifest of the Association for Information Society. For instance, at present the Plzen Region is facing this problem, as it plans to initiate the project VIRTUOS, but it lacks the legislative support from the central government.

Despite the limited scope of policies some actions could still be undertaken in order to facilitate the development at the regional and local level. The focus and resources should be directed to the IT infrastructure development. The priorities should include a high coverage of regions by backbone telecommunications infrastructure based on optical networks, the development of alternative open networks in selected localities, activities improving the availability of high-speed internet access to the public and organisations and the support for the development of the academic networks. The priority axis should also include the partnerships between regions and coordination of IT solutions development or the promotion of mobile communication such as WiFi hotspots.

In general, the regions should focus on the provision of high quality and usable electronic public administration services for citizens, which is however subject to legislation changes at the central government level. We could then also name the support the development of electronic signature and the services of electronic registries, enhance the openness and transparency regarding the public administration's information resources, establish data service infrastructure on the basis of Web Services and Service Oriented Architecture. More attention should be directed to the development of the content and implementation of IT systems to support the process and project management. The prerequisite for such an action is the modification of processes at the public administration and introduction of new tools, while still maintaining the traditional form of communication. It is assumed, that the integration of information systems will lead to greater flexibility in service provision and also open door for developing new services. Information system, database and network standardisation will remain one of the main conditions for the unification of internal process, which is however partially subject to the policy at the central government level.

The currently running project Czech Point can be partially viewed as bridge between the policy at central and regional level. The project was firstly initiated by local authorities which endeavoured to provide citizens with the option to settle various issues with the public authorities at one point. The excerpts from the Trade Register or Real Estate Cadastre could be easily accessible location such as post office branches, municipal offices and other designed spots. This initial policy employed at the regional level has consequently taken central dimensions and up to 1200 such points are planned to be set up in a foreseeable future.

Regional and local policies should also focus on tackling of eInclusion issues, by targeting and helping the citizen groups, which do not keep up the pace with the rapid technological development. Other measures could include the support of computer literacy for citizen and employees of the public organisations in the region and municipalities.

eHealth

Regional governments in the Czech Republic act as founders or owners of the majority of big hospitals, depending upon their legal status. They can thus directly promote and implement eHealth projects in their regions that are related to the interconnection of hospital networks that provide electronic medical records sharing, effective data storing, and store-and-forward telemedicine. This usage of eHealth can significantly improve the quality of health services in hospitals in several ways. First, it provides an opportunity to increase efficiency within each hospital if the new methods prompt the reorganisation of work. Secondly, it enables effective consultations with specialists located elsewhere. And, thirdly, it enables regional governments as owners of several hospitals to reorganise care provision via department relocations so as to increase the specialisation of each hospital, which has a direct impact on improving the quality of healthcare.

It is likely, as networks belonging to regional hospital adopt these eHealth tools, other private hospitals and independent practise specialists located in the given region will choose to participate in the regional network, thereby increasing the overall efficiency of health services provision for all inhabitants of the region. For a cost-efficient introduction of eHealth into regional health service provision, it is necessary that regional governments present their action plans concerning the introduction of new ICT and their concept of the final health service provision organisation in regional hospitals.

An additional eHealth related role relating to regional governments concerns their position as the organisers and responsible parties for health emergency service provision in the region. Hence, regional governments should cooperate with each other, preferably under the coordination of the central government, to increase the interconnection of their health emergency information systems and to interconnect it with other emergency organisations, such as the fire brigade and police, which are managed centrally. However, as it is the responsibility of regional governments to provide the health emergency services, they can take joint action and, for example, increase the pressure to speed up the

usage of electronic medical records that will enable the use of basic individual health information in emergency situations.

IV.1.3   European level

eGovernment

Issues concerning eGovernment largely fall to national competences. Possibly only specific detailed conceptual material could be prepared at the EU level, which would be devoted, for instance, to registers, central directories and others.

eHealth

At the European level, actions can be taken to support the development of various national registrars. Today, a great deal of data is being collected in individual member states, but it is rarely used to gather useful information and draw European comparisons. In the Czech Republic, and most probably other member countries as well, national registrars in general do not regularly exchange data with registrars of other countries, the case that could however increase the practical usage of existing data acquired by both sides.

A European-level system to process epidemiological announcements would be welcomed in the area of public health protection. According to the Ministry of Health CR, it would be beneficial if announcements could be compared, aggregated and managed on an international level, as opposed to the current practise of only exchanging announcements between countries.

The Czech Republic has proposed the establishment of a European Health Information and Clearing Centre. This institution would, among other things, accelerate the clearing process of paying for healthcare provided to enrolees by the healthcare system in another member state. It would also support further development in the free movement of patients.

IV.2   Appropriate policy measures in addressing these questions

IV.2.1   Institutional measures

eGovernment

A necessary prerequisite in carrying out the organisational changes in the Czech Republic necessitated by the dissolution of the Ministry of Informatics is the amendment to Act No. 2/1969 Coll., on the Establishment of Ministries and other Central State Administration Bodies of the Czech Republic, referred to in later amendments as the Competence Act. The amendment would lead to the dissolution of the Ministry of Informatics as a central state administration body presided over by a government official. If the amendment is passed, the competences of Ministry of Informatics will be distributed among the existing central bodies of the state administration in the following way:

1. The Ministry of Interior would become the central body of the state administration for the implementation and coordination of eGovernment;
2. The Ministry of Industry and Trade would become the central state administration body for the electronic communication and postal services, with the exception of matters under the competences of the Czech Telecommunications Office;
3. The Government Council for Information Society as a governmental advisory body would be established to prepare proposals for the government on the coordination of eGovernment development. It would also define and conceive strategies, goals and government policies pertaining to all of information society. The head of the Government Council for Information Society should be a member of the government and should be composed of experts from the central bodies of the state administration and elsewhere in addition to deputies of the Association of Regions and of the Union of Towns and Municipalities. Following the proposals of the Council, the government would allocate the financial resources for the implementation of specific eGovernment projects. As a consequence, the government could

coordinate eGovernment development in individual segments of the state administration and at various other levels as well. The advantage of establishing this Council would be in assigning the coordination agenda of informatics, which is surely a cross-departmental issue, directly under the competence of the Prime Minister of the government. The government would then have direct contact with experts from individual ministries and they would have the chance to express their views on legislative measures, policy concepts, and government proposals and actions via the Council. This solution would strongly contrast the efforts of individual ministries to push through items on their own agenda, which is currently one of the major barriers in the enforcement and implementation of eGovernment at the level of public administration.

The dissolution of the Ministry of Informatics must be accompanied by changes in a number of legal regulations, as listed in the following table:

Table 15: Legal regulations to be changed in order to abolish the Ministry of Informatics

Legal regulation	Area covered by the regulation	Agenda to be taken over by
Act No. 365/2000 Coll., on Information Systems of Public Administration	Information systems of public administration	Ministry of Interior
Act No. 240/2000 Coll., Crisis Act	Crucial infrastructure for electronic communication	Ministry of Interior
Act No. 26/2000 Coll., Public Auctions Act	Central Address	Ministry for Regional Development
Act No. 106/1999 Coll., on Free Access to Information	Compulsory provision of information by public authorities	Ministry of Interior
Act No. 137/2006 Coll., on Public Procurement	Electronic tools at public tenders	Ministry for Regional Development
Act No. 227/2000, on Electronic Signature	eSignature	Ministry of Interior
Act No. 258/2000 Coll., on Protection of Public Health	Notice regarding the format of the data related to protocol on the water quality at public swimming pools	Ministry of Health
Act No. 29/2000 Coll., on Postal Service	Postal services	Ministry of Industry and Trade
Act No. 127/2005 Coll., on Electronic Communication	Electronic communication	Ministry of Industry and Trade

Source: Own analysis

Several IT specialists from the public and private sector concur that the Ministry of Informatics should either be given stronger competences or the agenda of eGovernment should be placed under the Office of the Government. However, the IT experts interviewed for the purposes of this project did not collectively agree on the transfer of some competences of the Ministry of Informatics to the Ministry of the Interior.

eHealth

As indicated above, the single most important deterrent to the evolution of a coherent long-term policy in the field of eHealth in the Czech Republic is the frequent changes in the position of Minister of Health. Political stability is viewed as a precondition to the positive development of whole sector,

including eHealth. In addition to developing a clear concept of the general organisation of the healthcare sector, it would be useful for the Ministry to present its position on the future development of ICT usage in the health sector that would declare support for eHealth projects as well as a basic statement describing which benefits the Ministry expects eHealth will bring to health sector users. An outline of the Ministry's plan for the development of eHealth, supported by realistic arguments, can be used by the sector as a guideline when developing different projects, and it may also serve as a stable framework in the event of another leadership change at the Ministry, which would avoid the extreme changes in the Ministry's attitude towards eHealth witnessed in the past (see previous chapters).

In the area of public health protection, such as healthy life-style promotion the government should use eHealth approaches to communicate with and influence citizens. This, among other things, includes the further development of the Public Health Portal, a project that has undergone a pilot phase, but was put on hold in 2006. This is an efficient and relatively cheap way through which the government can inform and educate people on various aspects and factors related to their health.

On the institutional level, the government should also support projects that increase the amount of information provided to patients and citizens about the healthcare sector, and consequently help empower patients in relationships with healthcare providers and health insurers. The information would concern a wide variety of fields, including personal healthcare history in electronic medical records, information on the quality of different healthcare providers, information on the way in which the health insurance system functions, and information on individual healthcare consumption, among others. Similar existing projects include IZIP, GHIC portal, or the internet pages of the National Reference Centre of health insurers and healthcare providers (www.jaksekdeleci.cz), which are all mentioned in earlier chapters.

The government should support initiatives that enable the greatest number of citizens to take advantage of eHealth services, for example, the extension of IZIP project access to enrolees of other health insurance companies than VZP. In doing so, the government should consider establishing common and binding standards for the maintenance of electronic medical records and a basic set of information should be available and accessible to health emergency services. It should therefore be stressed that a common data interface will be necessary for the operation of all eHealth programmes in this domain. This issue is explored in greater depth below and in the next chapter.

eHealth can also be used in the health insurance segment. There are two possible means of employing eHealth as a financial tool. First, as relates to the patients, the government can impose the introduction of personal health accounts that offer people the possibility to view in almost real time what their health insurer is paying to care providers on their behalf. Providing this information via information systems will increase the general public's control of health funds by allowing citizens to monitor their individual healthcare consumption and enabling them to exercise direct control over the financial behaviour of healthcare providers towards health insurers.

Secondly, on the side of health services providers, eHealth can help increase the efficiency of the social health insurance system if ICT is used to control healthcare expenses by health insurers in real time at the lowest level, that of the individual doctor or hospital department.

At the same time, the government should take action to institutionally enable the establishment and use of new payment mechanisms that take advantage of ICT, such as the use of DRG (a prospective per case payment mechanism) in hospitals. Back office support of the public administration for such projects is also important; in the case of DRG, the government already utilises hardware and relevant knowledge used in past pilot projects (National Reference Centre).

IV.2.2 Legal and regulatory measures

eGovernment

Electronisation of processes within public administration

In the last couple years modern information technologies have been heavily implemented in public administration to increase the efficiency of the state and to make it more "slender" and more helpful

to citizens. Regrettably, neither one of these intended results has been achieved. Citizens feel as though they are lost in an endless labyrinth as they struggle to obtain more complicated decision within the public administration. They wander from one authority to another, each fully equipped with information technology, yet requiring confirmations in paper form. And, while the public administration is fully aware of the substance of these confirmations, it still must be retrieved from separate information systems. Citizens must visit these authorities in person and pay administration charges for the official documents they receive. They must not lose the documents and must correctly navigate the labyrinth to place them in the hands of the correct authorities, which are currently spread out through the whole Czech Republic without rhyme or reason.

This situation must be remedied by a fundamental and, if possible, general advancement in the organisational system of the public authorities. The barriers limiting data sharing and the delineation of effective administrative processes, not only in the public administration, but in all public authorities, lie in the hundreds of regulations associated with each individual operation performed by each authority. Removing each barrier one by one is a Sisyphean task; just as one barrier is eliminated by an "enlightened" clerk, another barrier spontaneously emerges elsewhere. It is not surprising that after several years of struggle and a few notable advancements in some areas, such as the development of the electronic signature and electronic registries, citizens do not perceive any actual progress. The citizen signs the document electronically, submits it electronically, but ultimately must personally collect official paper receipts from state authorities, with thus, remaining inefficiencies.

One can see an example of this sort of bottleneck in the process of attaining a unique, signed and often state verified deed required as proof of facts employed in a decision making process. The content, form, and verification method of such files are regulated by different types of legislation according to their specific purpose. Therefore, no advancement in the system is possible by focusing on individual transactions and documents without spending the next ten years preparing and passing amendments. However, an advancement is possible by defining the electronic counterparts to all paper documents. And certainly, public administration bodies will also have to be obligated to grant these documents the same validity and weight as paper documents.

The simplification of processes at public administration requires the implementation of an electronic form of communication, not only in the communication between citizens and authorities, but also internally within individual authorities and in the communication between different authorities. This will require preparation of legislative regulations that allow the use of electronic documents, including in situations in which it is currently only possible to use paper documents. In addition, it is necessary to propose regulations for the simplification of electronic communication between citizens and authorities, as well between the different authorities themselves, including the administration of electronic files.

In addition, in some instances the communication between citizens and public authorities could also be possible through the use of an interface of secured profiles of bank accounts in the internet banking applications used, for example, for filling out statistical data.

Regulatory Impact Assessment and development of eDemocracy

Regulatory Impact Assessment has been part of the State Administration Reform. The next step would be the preparation of legislative regulation which should clarify the general rules governing the adoption of all legal regulations that impose obligations upon citizens or entrepreneurs to execute, refrain from or sustain any actions. Included among these rules will be the binding obligation to accept the given legal regulations pertaining to public consultations conducted by the means of internet. In addition, there would be an obligation to deal with each comment received and to make the results of these consultations public, which would increase transparency in the legislative process and achieve a higher quality of approved legal regulations. It would require the use of electronic measures that would enable the translation of the legislative process into algorithms and the subsequent analysis of the impacts of the proposed legal regulation, including models of various scenarios.

The greater participation of citizens in legal and other decision-making processes must be initiated simultaneously with the development of digital TV broadcasting, which would, due to its wide penetration, enable not only the participation of citizens in the decision making process, but also increase the awareness of citizens about up-to-date developments in the public administration.

eHealth

According to many of the experts interviewed for this study, healthcare legislation is considered generally insufficient and inconsistent, which is a limiting factor in eHealth development. There is a lack of legislation that addresses the requirements for the keeping of medical records in electronic form. In general, the experts call for specific establishment of standards of electronic health data security in formal legislation.

As mentioned above, for the further development and efficient usage of eHealth, it is preferable to set national standards for electronic medical records, their storage and access security, and data interface, including ensuring interoperability with health emergency service IS.

For a faster implementation of eHealth, it is necessary to secure financing for its development, which requires reshaping the current regulations of health insurance companies concerning their overall spending limit on operational costs and investments, which are currently directly limited by the law on General Health Insurance Company and the law on Branch Health Insurance Companies (more detail in next section 4.2.3).

Further areas for eHealth development that require governmental legislation and regulation actions include, for example, introduction of e-prescription (pilot project currently put on hold), introduction of electronic auctions within pharmaceutical policy, or managed care projects based on patient management through the extensive use of ICT to monitor, manage, and control patients' behaviour and healthcare expenses.

Furthermore, other eGovernment related ICT and electronic tools that require additional attention and arrangements from the State and legislative treatment are applicable to the healthcare and health insurance sectors as well, including the electronic submission of application forms to health insurance companies that are related to registrations, premium payments, etc.

IV.2.3   Fiscal and financial measures

eGovernment

There is a need for greater financial resources devoted to inter-ministerial projects in order to give IT departments additional resources to cover more than just operating costs and open the door for the development of inter-departmental projects.

The Ministry of Interior, as a central state administration body for the coordination of public administration, could distribute financial resources to encourage individual regions to coordinate their activities in the enforcement and development of eGovernment services to avoid inconsistent solutions between regions. The Ministry of Interior should invite tenders for the implementation of eGovernment solutions in each public administration area administered at the regional level. The Ministry of Interior should then finance the project evaluated as the optimal and transferable solution for all regions. The relevant region would then be bound to proceed with the development and realisation of the project. After its completion, the final programme or solution pack should be shared and installed in other regions. In this way, it would not be necessary to develop separate solutions for the same agenda for each region, the financial resources could be saved, and the applied solutions would be compatible.

Drawing more resources from EU structural funds could further support the selected solutions at the regional level.

eHealth

Health insurance companies have very limited funds available for their internal spending. The limit on operational costs and investments is defined by the law on GHIC and the law on Branch Health Insurance Companies and is set as a fixed percentage of their total health insurance premiums collected, which limits their capital spending on ICT. Funds for internal purposes are limited by a set proportion established by law of the total insurance premiums collected. Hence, to support initiatives on the side of health insurance companies, it is necessary for the central government to adjust the strict financial regulation of health insurance companies' internal resources to allow for the necessary investments in ICT. It must be stressed that, based on the current state of technological development and knowledge as described above, a high quality of information systems in insurance companies is crucial to achieve the maximum benefit from most eHealth projects the health sector has at its disposal.

To boost eHealth development at the level of healthcare providers, health insurance companies should be allowed to support healthcare providers that contribute to and are involved in specific eHealth projects. Many of the potential projects described earlier require the active involvement of both interested parties for their successful realisation and effective operation. One of the possible ways, in which the central government can provide more funding for healthcare providers to implement eHealth projects, is by giving health insurers the ability to financially motivate care providers. In this way, the government can overcome the current reluctance of individual care providers to involve themselves in eHealth programmes that require them to spend their own money. As most healthcare providers are not directly State-owned, it is their own responsibility, or the responsibility of their founder/owner, to find funds for eHealth projects within their internal resources, which hampers the eHealth development envisioned by the central government.

The role of EU structural funds presents another funding related issue. In the last programming period (2004-2006), health was not set among the national priorities, thereby making EU funds de facto unattainable for specific eHealth projects. This should change for the programming period in 2007-2013. It has been announced that health and healthcare as such will not be set as a priority with a separate operational program; however, issues in health, including eHealth, will be included across different priorities which will be defined by their aim rather than their domain.

Nevertheless, the availability of EU funds for most eHealth projects is still limited by the need for co-financing, which in some cases can become a limiting factor in eHealth development. This is especially true with smaller recipients of EU funds, i.e. individual healthcare providers on the regional level or beneath. For the efficient usage and investment of public money, including EU structural funds and investment subsidies from the central state and regional budgets, the central government must take three essential steps. First, the national priorities in eHealth should be clearly stated, which calls for the development of a strategic document, as described earlier. Second, money from public budgets for the purposes of co-financing must be secured, as a substantial number of subjects receiving money from the EU will be publicly owned entities, either belonging to the State, as with the teaching hospitals, or to the region or municipality, as with regional and small hospitals and long-term care facilities. Thirdly, national criteria for receiving state subsidies for co-financing investment projects must be reworked to ensure compatibility of the project with the national eHealth strategic plan. At the same time, introduction of subsidies should also be suitable for subjects whose investments in eHealth can place a significant burden on their cash-flow. At the present time, the opposite generally holds true.

IV.2.4   Infrastructure and technology measures

eGovernment

Overall, the electronisation of public administration processes should always be subject to a cost-benefit analysis, but this is not always the case. The specific actions which could be undertaken include the following.

Setting up central contact points with public administration for citizens

Simplifying communication between public authorities and citizens should be the primary goal of the central contact points so that individual authorities or low-level clerks do not force citizens to unnecessarily visit numerous offices. Citizens should have the opportunity to complete all agenda with the public administration at one location. This could be accomplished by establishing a network of contact points where citizens could get all of the necessary information, copies, and excerpts that are managed in the central non-public registers. It would also include personal registers and registers related to objects and rights. Citizens could receive verification of documents, files, and signatures and convert documents to electronic form through this network. Included in the range of services would be the possibility to make submissions to any authority of the public administration and the option to get information on proceedings in all matters related to the citizen that are conducted by the State or by other public administration bodies. The ground stone for this network would be municipal authorities and other subjects that are eligible to operate these contact points.

The purpose of eGovernment cannot be merely seen as provision of front office services in which citizens or entrepreneurs make electronic submissions. On the contrary, it should rather be viewed as a progressive development in electronisation and a design for more efficient processes within public administration.

In addition, there should be a greater focus on the multi-channel approach to allow citizens to communicate with public authorities through digital TV and other media besides personal contact.

Creation of central registers and data sharing

A necessary precondition to the efficient operation of authorities is surely the creation of central registers of public administration capable of data sharing. For that reason, it is necessary to initiate intensive work on these issues without delay by making use of already existing documents, such as *The Analysis and Proposal of Registers of Territorial Identification, Addresses and Immovables*, approved by the Government Resolution No. 1306/2005, or the proposal of the creation of an Economic Register, approved by the Government Resolution No. 562/2006. It would be a great step forward if the that broad political consensus on the solution of central registers and data sharing between them was reached together with the support of experts in the area. Even though it is obvious that the creation of central registers and their interconnection will take several years, it is now necessary to set clear organisational and technical rules in legally binding form to ensure the stability of the development of a central register in the overall system. The content of central registers is a State property. Thus, the central registers acting as the information system of public administration should have one administrator, namely the organisational unit of the Office of the Government of the Czech Republic – The Competence Centre for the Administration of Central Registers. The individual ministries would operate these systems. Other authorities entitled to enter these registers within their competences would only be allowed to upload data. This measure should lead to elimination of the efforts of individual Ministries to push forward their own agendas, which is apparent in the area of data collection. The situations when individual ministries cannot come to agreement as to which data should be binding and constitutive for all authorities would be avoided, as well.

Support of content

The State should use ICT policies to support the content and evolution of eGovernment services, rather than simply to provide, for example, easy access to certificates or more favourable internet access, as it was the case in the past. Past experience of the Czech Republic has shown that if quality eGovernment services are not provided in an easy and accessible manner, then Czech citizens do not have motivation to use them. The main factors that increase in the use of electronic form are occurrence, quality and simplicity.

Communication infrastructure of public administration

In order to coordinate eGovernment development, it is necessary to construct a communication infrastructure within the public administration to facilitate communication between public administration authorities. This cannot be accomplished by creating separate infrastructures for each

ministry, which hampers eGovernment development in the Czech Republic. The communication infrastructure of public administration cannot be understood as merely an infrastructure that connects hardware on which a particular software application is run. Rather, it is more of an environment in which it is possible to implement, apply, and further coordinate individual services. Therefore, a government priority should be the interconnection of all state administration authorities through a communication infrastructure of public administration.

Central data warehouses

The State should focus on establishing a general concept of the electronic use of data, as well as rules that apply to the operation, administration, saving, and protection of the data. Should the agenda be dealt with in electronic form, it is necessary to set up a strategy on how to manage data on a short term and long term basis that concerns the structure and format of archived data and its security. This process will involve financial investments into the creation of a central data warehouses.

Usage of open format in the public administration

The State should establish clear rules for the usage of documents in public administration, including the possible use of open formats and standards, in order to secure its full interoperability.

Computer literacy

The State should be concerned with the computer literacy of the population, especially regarding social exclusion resulting from the implementation of eGovernment services. Every service provided online should be accompanied by an alternative approach that enables citizens with lower computer literacy to use the service, possibly with the assistance of employees at the public authority contact point.

It is necessary to focus on the most threatened population groups when supporting computer literacy education in order to increase the competitiveness of the entire population, especially in terms of employment policy.

eHealth

The most important factor limiting the further development of eHealth activities is definitely the current lack of a commonly used standard data interface in healthcare. The only exception is the transmission of photo documentation from a diagnostic/imaging technology to displaying technology/devices where DICOM data interface is used as a standard. Elsewhere, the Ministry of Health fails to support eHealth usage by refraining from demanding and enforcing the use of one data interface in all healthcare information systems, a standard that could potentially be used internationally, thus enabling the interconnection of databases on international level. Some experts think this data interface standard shall be the HL7 for all IS apart from the imaging technology; however, an opinion survey has not been conducted to determine the level of general support for this IT solution.

One exception concerning the Ministry's demand for standard data interface applies to the domain of diagnostic services in which a special data interface has been developed by the Ministry that so far applies to biochemistry, haematology, microbiology, and immunology. In these medical disciplines, a common interface is a must for communication and outcome usage with other hospitals' IS.

There are no standards for the keeping of patients' electronic medical records in a hospital's IS. The government only requires that statistical information must be collected for the purposes of an obligatory report to central administration; however, they fail to set or demand standards for individual medical history data, thereby resulting in non-functioning national registrars. Due to the lack of a common interface, the export of data from hospitals' information systems to a national registrar is not done automatically. The national registrar of intensive care can be used as an example of a non-functioning registrar. However, another expert has stated that a lack of money is the only obstacle for the successful commencement of operation. A budget at the Ministry of Health for this particular

project did exist; however, the former Minister used it to cover extensive debts of teaching hospitals earlier in 2006.

Data warehouse systems are another issue in infrastructure development. There is a strong call for the central coordination of the creation of new data warehouses and the interconnection of the existing ones. These are very expensive investment projects whose efficiency suffers from fragmentation. Data warehouses do exist at the regional level in some places; however, rivalry generally persists where cooperation should be in place. Where no data warehouse exists, all data are still stored on CDs – a common practice still in many hospitals, even the big ones. Good examples of how cooperation in this field can be efficient can be found already today. For example the Thomayerova fakultní nemocnice (Thomayer's University Hospital) and the Ústřední vojenská nemocnice (Central Military Hospital) use a fully shared data warehouse. The Jihomoravský kraj (Jihomoravský region) is another example, which has been aided by the university Vysoké učení technické v Brně (Brno University of Technology) in its endeavours.

For further development of eHealth and the efficient utilisation and investment of public money into eHealth projects, the central government can take beneficial action by adopting a coordinative role and, with the participation of interested subjects, by setting a national strategy for the creation of an efficient data warehouse network. According to some experts, such data warehouses do not necessarily need to be part of hospitals' facilities, but can be independently organised and managed.

IV.2.5   Other policy measures

Promotion

In general, the expansion of ICT technologies, and especially the services they provide, depend on general promotion, with the focus also on the employees of the public administration. At the individual contact points, it is necessary to help users to get acquainted with the new systems by explaining the details of operation, as well as the benefits of using the online services. In other words, ordinary people should be shown the benefits brought by electronisation; perhaps the experts from Real Estate Cadastre could organise presentations, showing the specific results to citizens.

V. THE MAJOR FUTURE TECHNICAL AND NON-TECHNICAL R&D CHALLENGES SPECIFIC TO E-GOVERNMENT AND TO E-HEALTH

V.1 Technological development and its implications

The implementation of ICT technologies in public administration in the Czech Republic is a rather slow process. The Czech public administration still gives preference to documents in paper form and generally uses them as a default option. Even though in some cases the electronic form of a document is legally binding, for the most part, it regrettably is not. The public administration in the Czech Republic stands at a crossroads and must decide either to continue to use their current methods of implementing eGovernment services, which is to structure the electronic process on the traditional public administration model based on files in paper form. Another option, and one that has proven more effective, is to build a new and modern system parallel to the current system. The new system would equally respect the legality of documents in both electronic and paper form, leading to more efficient processes and the better monitoring of workflow. Unnecessary and inefficient process segments would be eliminated, together with work duplication and any bottlenecks. In the last instance, it would lead to the acceleration of individual processes at public administration.

Only after the construction, application and operation of this new system of public administration can the gradual removal of the old system of public administration begin. However, this process would necessitate additional measures on the part of all concerned parties.

The implementation of a new system of public administration would require information literacy and quality technical equipment on the part of citizens and entrepreneurs, while clerks, in addition would have to make efforts to continuously educate themselves on new procedures and processes and develop their information literacy.

Individual authorities would have to take new measures at several levels, primarily the organisational level, where it is necessary to carry out agenda audits to determine the reason behind individual activities and their benefits and efficiency measures in order to ensure efficient implementation. IT systems should be employed in areas in which they bring significant savings and not towards agendas that are either redundant or are used so infrequently that they cannot be cost efficient in the long term. The public administration could consider whether or not there are certain agendas whose execution could be outsourced to private subjects.

Authorities would also have to invest in human resources, particularly education. In addition, the it should be remembered that during the first years of implementation of new technologies there does not necessarily have to be a decrease in the number of employees. To the contrary, the number could even increase for certain period of time, due to the process of perfecting the parallel functioning of the traditional and modern systems. In the long term, as a consequence of switching to a solely modern system, the number of employees at public administration should decrease. The decrease should be related primarily to implementation of the modern ICT technology leading to higher efficiency.

In addition, the approach to open source software and open formats will have to be reconsidered to avoid increasing the costs of system operation and to ensure the enforcement of the non-discrimination principle.

Moreover, specific R&D challenges can be seen in setting the optimal framework for the creation of central registries, electronic circulation of documents, equalisation of paper form with the electronic one and setting up the new system of public administration in general. These are complex processes where numerous legal and other barriers, such as organisational, technical and political have to be removed. The centralised operation of back office of public administration with the access via internet with the integrated log-in system constitutes other future research challenges.

Additional requirements accompanying eGovernment implementation are of a technical nature. This is not restricted only to the regular operation, maintenance, renewal and upgrade of information systems, but also encompasses high investments into the development of new services and their

security. Securing these technological issues will involve several new investments, for instance, investments into the development of secured electronic documents, the creation of registers, the analysis of the agendas of various authorities, the development of the communication infrastructure of the public administration, data sharing between registers, and the conversion of documents. Furthermore, investments into the security of the communication interface between citizens and authorities and between single public authorities themselves will be necessary as well.

Additional challenges are the interconnection of networks within EU, which concerns for example the Czech Social Security Administration, and data archiving. The long term storage of data over a period of 15 years remains a worldwide problem, and long-term archiving remains a point of uncertainty, which gives an opportunity for further research. The issues of safe date archiving, changing data and file formats and storage media lifetime have to be dealt with.

The Ministry of Informatics of the Czech is currently working on several challenging R&D programs. We could name the research in the field of electronic communication which is focused on the application of methods and resources for the development of communication infrastructure and services of information society. Other research topics include possibilities of securing interoperability of networks with the IP protocols, long term storage of documents which were signed by the electronic signature, the accessibility of web pages of the public administration for handicapped citizens. The multiple electronic signature and its usage for other applications at the public administration stands for another example.

Other research questions to be answered in the future in the domain of eGovernment are for instance the impact introduction of other electronic media. The question remains whether the introduction of digital TV would not be sufficient and more user friendly, as well as less expensive than the support of other or all media channels, such as tablet PC's, Smartphones or Contact Points with public administration.

At the regional level, the R&D challenges can be seen in the possibility of applying the ready made solutions across European regions/municipalities and adjusting in to the specific conditions. Also the questions of usage of open formats at the public administration remains open, it is unclear whether they should be forced from the central level.

The 10th annual conference named Internet at Public Administration (Internet ve státní správě a samosprávě) which took place in April 2007 in Hradec Kralové in the Czech Republic has also given a rise to numerous technical and non-technical challenges. Furthermore, the attendance of the government members and the interest from media has shown that the development and research in the field of eGovernment is gaining on importance in the Czech Republic.

eHealth

Non-technical R&D challenges

Non-technical R&D challenges specific to eHealth are related to the current lack of national strategies for the further development of the use of ICT in the health sector, which may become a limiting factor if difficulties in interconnection occur in interlinking different regional projects to ensure their further development. The lack of a strategic country-wide concept demonstrated through a national strategy and unified data interface can result in a technological barrier to eHealth development that will be expensive to overcome (see below).

Secondly, insufficient human capacities and/or insufficient qualifications to execute and manage projects may prove to be a challenge as well. In the healthcare sector, many stakeholders are public institutions, as are health insurers, or publicly owned subjects. Due to the lower average wages in the public sector than in private entities, it is a significant challenge to find the top qualified specialists necessary to act as project leaders for important eHealth/ICT activities. Training programmes that also cater to middle staff technicians can help overcome the lack of qualification among healthcare sector workers and help them keep pace with the fast-developing knowledge in ICT fields.

Thirdly, financing problems are additional non-technical challenges, particularly the scarcity of financial resources to cover the operational and investment costs of health insurers, significant chronic imbalances between income and expenditures of big university hospitals, which are directly controlled by the Ministry of Health, and the fact that under the current system setting, proactive subjects are not allowed to profit from advantages generated by new projects.

Technological developments and challenges posed by their application

Technical R&D challenges stem from the current lack of enforcement of the application of a uniform data interface for all healthcare information systems, or for standards that are at least applicable to new IT projects, and to the discrepancies between the specific data interface standards in diagnostic services developed in the Czech Republic and those commonly used abroad, particularly in the EU. Both of these facts can already become a significant barrier to further eHealth development in the near future when regional networks and projects will need to become interlinked to stimulate successful development and more efficient utilisation.

The explicit R&D challenges include the development of electronic medical records, the interconnection of various health facilities and data sharing between these facilities. Significant efforts should also be devoted to overcoming the related technological barriers.

Also, the time consuming training of personnel in the operation of new technology, especially medical technology, can be a challenge that will need to be addressed by proper educational programmes. This is one potential area in which the central government can help address these issues by coordinating or organising these training programmes.

The current lack of country-wide data warehouse strategy does not pose an immediate problem; however, it may be a limiting factor when the expansion of eHealth programmes necessitates large-scale data storing. In light of current trends and developments, it is arguable that the appropriate capacities will not be immediately available due to the fragmented and, in most cases, rival nature of data warehouse projects. The current situation causes the doubling of data warehouse capacities in some areas and shortages of storage capacities elsewhere, as data is still being stored on CDs in situations where data warehouses do not yet exist. Furthermore, investment efficiency can be significantly improved if different hospitals cooperated, and even more so if they belonged to the same entity, as is the case of university hospitals (or so-called "directly controlled" hospitals, under the control of the Ministry of Health. The comprehensive development of a functional data warehouse system on a national level is crucial for the further development of store-and-forward telemedicine.

Recently, there have been new proposals for creating an integrated healthcare information system. Such a system would include components such as the electronic identification of insurees, the electronic identification of health professionals, international health information and clearing centres, national registrars, and other services. For this type of integrated system to be functional, it is necessary that the respective aforementioned elements share a common data interface and are also capable of communicating with other healthcare information systems, as are, for example, the information systems used in hospitals and independent practitioners, but also pharmacies, national registrars, etc. The current lack of a uniform data interface used, or at least required, in the Czech Republic can become a significant technologic obstacle to further eHealth development.

The content of each of the electronic identifications, if not specified uniformly on the national level, can vary considerably and thus present another kind of impediment to eHealth expansion. These variations in content can make it more difficult for each of the information systems in question to communicate and cooperate with a system platform above it. The system platform will have to accommodate the different structure of the information contained in each of the systems "below", although many of these systems have nearly the same function. This situation is already visible in the IZIP project in the Czech Republic. If the creators of IZIP (Internet Access to Patient Healthcare Information) do not succeed in getting health insurers besides the General Health Insurance Company (GHIC, VZP) involved in the IZIP project, there is a risk that a competing project may potentially develop in cooperation with another health insurer. This eHealth project may then deal with a different

structure of information, which may later hamper the introduction of smart cards for insurees on a national level.

In addition, the insurees' smart card is not only intended as an electronic identifier, but will also contain basic health data to be used in case of an emergency. Possibly, a larger file with a personal medical record could also be included on the smart card to be at the disposal of the treating doctor, thereby serving as a tool to improve patient management. The same holds true for its potential use by health insurers, who can use the data collected and contained in the files of a smart card to access information to be able to review previously administered health services and thereby avoid the unnecessary repetition of diagnostic tests.

V,2   Financial aspects of eGovernment and eHealth implementation

eGovernment

Especially, the high financial costs of eGovernment implementation will require the utilisation of multi source financing, which would not only come from the public budgets, but also co-financing from EU funds and private sources as well. The financing of register creation and of communication infrastructure should primarily be backed by resources drawn from public budgets, including co-financing from EU funds. Conversely, the building and operation of a communication interface between citizens and authorities (e.g. the operation of data boxes for communication of citizens with authorities) can surely serve as suitable opportunity for the involvement of private sector, via, for example, PPP projects. Predominantly, this will have a negative impact on paper file delivery, which is currently provided mainly by the Czech State (the Czech Post still has a guaranteed monopoly position in deliveries up to 50g or the price of delivery up to 18 CZK – ca. EUR 0.6). Authorities have spent billions on standard paper file deliveries, which could be to a large extent saved by the electronic communication means. At the same time, the profitability of private subjects operating these systems could still be secured. This is mainly a challenge for the current holder of the Postal Licence for which the authorities are the major clients. The possible loss of these clients resulting from the transition of the official communication systems to electronic form could lead to severe financial problems within the Czech Post.

Additional opportunities for the entry of private capital into the domain of eGovernment enforcement lie in, for example, the communication of certification authorities with providers of mobile communication, the cooperation of banks with certification authorities, the cooperation of banks with the public administration and enabling the provision of some eGovernment services via cash dispenser machines or internet banking interfaces.

A further option for the entry of private capital into public administration could be the construction of contact points for the communication with public authorities and licensing their operation to private subjects. In this way, the State would keep the back office and pass the operation of the front office to private subjects.

eHealth

Financing eHealth projects seems to be one of the most important challenges concerning further R&D development in eHealth in the Czech Republic. Generally, ICT investments may be to some extent co-financed by a subsidy granted from the central budget; however, as eHealth has so far not been promoted to the level of a national priority, the decision to support and develop a specific eHealth project relies fully on the will of individual health sector stakeholders. The scarcity of funds is accentuated by the legal limit posed on the availability of internal resources for the operational costs and investments of health insurance companies. This lack of finances constitutes a barrier to further development and the substantial expansion of some promising projects across regions, like the Independent Practice Association - IPA (Sdružení nezávislých lékařských praxí) in the Northern Moravia region, which uses the tools offered by ICT to its full extent.

The development of specific eHealth projects in big hospitals is also limited by the availability of funds, as some of the important university hospitals (which are directly state-controlled) struggle with

poor management. Once hospitals have difficulties in handling their overdue payables, it is harder to imagine that they will be actively supporting new eHealth initiatives within their facilities. Also, unless subjects receive a direct economic advantage from the implementation of new eHealth projects, they will not support, develop or invest in them. Unfortunately, this is the current situation in many cases; those who are active and forward-looking are not rewarded, but actually penalised by the current system.

V.3   Security and ethical aspects

eGovernment

The major building blocks of eGovernment include: the identification of citizens, the protection of this identification and the rules for the disclosure of identity in documents and proceedings. In addition to these forms of protection, eIdentity should provide the possibility to perform tasks in substitution so that also people with insufficient information literacy could complete acts with the help of desk employees.

In addition, it is necessary to resolve an option for the review of past transactions to facilitate the identification of possible rule breakers.

It is necessary to invest a significant amount of resources into the construction of a competence centre to manage the central registers and would give the entitlement to enter the individual registers, so that only competent subjects have access to personal data managed in the registers. There is a greater threat in human error than in the possible access and misuse of data from outside. Therefore, monitoring the access and flow of data is as, if not more, important than complex access software security measures. Because of these factors, a risk analysis should be conducted, which has not yet been done in many instances, to see which data have to be protected and at which level. Otherwise, the "over security" would lead to an unnecessary cost increase.

With regards to data saving, document services, and archiving, it is necessary to thoroughly deal with the permanency of documents and to ensure continuous conformity with the original version. There is also a possibility of transferring the current content of archives to electronic form, including granting access to the broad public.

eHealth

Sharing information contained in individual medical records poses another challenge for the security of eHealth applications. As mentioned earlier, experts call for a legal arrangement of the entire domain in which sensitive personal information, such as medical information, is collected, transmitted, and stored electronically. The need for a comprehensive legal treatment is especially pronounced in situations where information is used and managed by more than one subject. Another aspect relates to the credibility of eHealth projects. If the security of electronically treated personal health data is not generally perceived as trustworthy, it will pose an important barrier to the wide acceptance of any new eHealth project and to increasing rate of usage of the existing ones. At the present time there is no such arrangement of electronic medical records provided in Czech legislation.

V.4 Social challenges

A precondition for the successful implementation of eGovernment is the inclusion of all social groups in the use of eGovernment services in real life situations. Attitudes towards eGovernment services must not contribute to a social division between those who use eGovernment services and those who, due either to inaccessibility or information illiteracy, do not. Threatened social groups need a special focus, and at the same time efforts to support information literacy need to continue. Efforts to find ways to make eGovernment services more simple and accessible to the widest possible range of social groups are essential, as is the provision of eGovernment services through a greater number of communication platforms. The development of digital broadcasting serves as a good example of a future opportunity in this area, as it can provide an additional communication channel for the communication of citizens with public institutions (besides Internet).

V.I   CONCLUSIONS

Background and building blocks for eGovernment and eHealth development

This country report gives a complete overview of the background and current developments in the field of eGovernment and eHealth in the Czech Republic. An exhaustive description of past policies and strategies and the legal environment, and an overview of eGovernment and eHealth services, are provided. It is strongly argued that a simplified overview of services based on the European benchmarking omits relevant details about the level of eGovernment and eHealth services. The developments in legislation are crucial for an understanding of the current status quo and also for future policy goals and challenges. The existing policies and action plans have not been coordinated at either central or regional level.

Assessment of the current developments

The report critically assesses the latest developments in the field of eGovernment and eHealth in the Czech Republic. Had the financial and human resources been directed more efficiently for the promotion of electronic communication with the public administration, better results could have been achieved.

Instead, the focus was on "quick win" projects that increase the level of provision of eGovernment services, i.e. primarily making as many submissions in electronic format as possible. Unfortunately, no means were created for executing the process in cases where it is necessary to submit additional attachments with the submission. Hence, the attachments exist on paper only.

The problems with data sharing among single state registers also betray the sorry state of the back office affairs. Some legal documents are kept in registers in electronic format, even though they are not entirely adaptable to this format. Data in electronic format are almost never considered to be legally binding.

The conclusion is that each ministry implements, to a greater or lesser extent, its own eGovernment applications individually. The extent to which each ministry devotes its efforts to electronisation often depends on the political will of individual ministers responsible for a particular agenda. The enthusiasm of IT employees in a given ministry and the ability of political representatives to secure financial resources from the state budget for project financing also have a significant impact on the electronisation of particular areas.

The development history in the field of eGovernment can, to a great extent, also be applied to eHealth. In addition, developments in eHealth have been greatly affected by frequent changes in political representation at the Ministry of Health during past years. Although there is undoubtedly a trend towards a greater use of ICT tools in communication and for increasing efficiency, the question is how can the tools provided by eHealth be used and what exactly should they be used for? As there was a lack of nation-wide strategy for the healthcare sector in general in the past, initiatives were often carried by other health sector stakeholders, regions being among the players. In some ways, this has caused a fragmentation of strategy for the sector.

Economic factors affecting eHealth solutions are influenced by the organization of the Czech healthcare system, which is based on multiple public health insurers. Their capital spending on ICT is limited by the availability of funds for internal purposes and a lack of coordination of capital intensive projects. Additionally, very limited proactive policies in this sphere have been developed by the Ministry of Health in recent years.

eHealth applications have also been adversely affected by unusually frequent personnel changes at the Ministry of Health, which is probably the single most important deterrent to the evolution of a coherent nation-wide long-term policy in this field in the Czech Republic. It is also one of the reasons why regional governments have developed their own plans and strategies for the healthcare sector, which has, in turn, influenced the development of eHealth projects at the regional level. Another

important factor in eHealth development is the distribution of power between the Ministry of Health and individual regions.

Policy options

It is necessary for the government to develop an overall concept of eGovernment development in the Czech Republic as the current concept is too general and it does not tackle specific problems.

Inter-ministerial projects should consequently be supported by project-based financial resources following the three step approach: concept, budget and execution. Overall, the general consensus is that political factors will be decisive in the future development of eGovernment in the Czech Republic.

Efforts should, therefore, be made to create an optimal environment for the enforcement of eGovernment services that would lead to more transparent and simplified processes within the public administration and grant significantly higher quality and more user-friendly services to citizens.

At the regional level, the focus and resources should be directed at IT infrastructure development. Regions should focus on the provision of high quality and usable electronic public administration services for citizens. This provision is, however, subject to changes in legislation at the central government level. Regions should also support the development of electronic signatures and the services of electronic registries, and enhance openness and transparency regarding the public administration's information resources.

Legal policy measures need to focus on the complex issues of electronisation of process in the public administration. The barriers to data sharing and the delineation of effective administrative processes lie in the hundreds of regulations associated with each individual operation performed by each authority. Legislative regulations will be required that allow the use of electronic documents in situations in which it is currently only possible to use paper documents.

There is a need for greater financial resources to be devoted to inter-ministerial projects in order to give IT departments additional resources to cover more than just operating costs and open the door to the development of inter-departmental projects. Drawing more resources from EU structural funds could further support chosen solutions at regional level. Specific action plans for the future should include the setting up of central contact points for citizens to access the public administration, creation of central registers and data sharing, support of content, building communication infrastructure in public administration, creation of central data warehouses, usage of open format in the public administration, support of computer literacy and general promotion of ICT technologies.

With respect to eHealth, the State should take responsibility for the implementation of eHealth projects in the fields of public health promotion and education. It should also implement country-wide projects focused on the overall quality of health services, including the electronic identification of health professionals, and registrars. However, many eHealth projects, like the introduction of electronic medical records, the electronic identification of enrolees through the smart card, the interoperability of information systems among healthcare providers and data sharing, etc., remain the responsibility of health insurers and healthcare providers. The government should also support projects that increase the amount of information disclosed about the healthcare sector in order to empower patients in relationships with healthcare providers and health insurers. The government should also consider establishing common and binding standards for the maintenance of electronic medical records and a basic set of information that should be available and accessible to emergency services. A common data interface would be essential for the operation of eHealth programmes of this type.

At the regional level, regional governments can directly promote and implement eHealth projects such as interconnecting of hospital networks, providing electronic medical record sharing, and effective data storing. An additional role of regional governments concerns their position as organisers and responsible parties for emergency service provision in the region.

At the European level, actions can be taken to support the development of various national registrars. At the moment, national registrars in the Czech Republic do not regularly exchange data with

international registrars. A European-level system to process epidemiological announcements would be welcomed in the area of public health protection. The Czech Republic has proposed the establishment of a European Health Information and Clearing Centre that would also accelerate the clearing process of paying for healthcare provided to enrolees by the healthcare system in another country and support further development in the free movement of patients.

eHealth applications can also be used in the health insurance segment. Firstly, the government can impose the introduction of personal health accounts. Secondly, eHealth can help increase the efficiency of the public health insurance system if ICT is used to control healthcare expenses. At the same time, the government should take action for the establishment and use of new payment mechanisms that take advantage of ICT, such as DRG in hospitals.

According to many of the experts interviewed during the study, healthcare legislation is of low quality and, in addition, legislation that addresses the requirements for the keeping of medical records in electronic form is lacking. In order to encourage faster implementation of eHealth, it will be necessary to secure financing for its development, which will require reshaping the current regulations of health insurance companies concerning their overall spending limit on operational costs and investments. Health insurance companies should also be allowed to support healthcare providers that contribute to and are involved in specific eHealth projects. The role of EU structural funds presents another funding-related issue.

The most important technological factor that limits the further development of eHealth activities is definitely the current lack of a commonly-used standard data interface in healthcare. Data warehouse systems constitute an additional issue. To solve the problem, central coordination of the creation of new data warehouses and the interconnection of the existing ones is needed.

Future challenges

There are specific R&D challenges in setting the optimal framework for the creation of central registries, electronic circulation of documents, and setting up new systems of public administration in general. These are complex processes where numerous legal and other barriers, e.g. organisational, technical and political, have to be removed. Centralised operation of the back office of public administration with access via Internet to an integrated log-in system constitutes another future research challenge.

At the regional level, R&D challenges can be foreseen in the possibility of applying ready-made solutions across European regions/municipalities and adjusting them to the specific conditions. Also, the question of usage of open formats in the public administration remains, it is unclear whether they should be forced from the central level.

R&D challenges specific to eHealth are related to the current lack of national strategies for the further development of the use of ICT in the health sector. Insufficient human resources/or insufficient qualifications to execute and manage projects may also prove to be a challenge. Further R&D challenges stem from the lack of enforcement of the application of a uniform data interface for all healthcare information systems, or for standards that are at least applicable to new IT projects, and to the discrepancies between the specific data interface standards in diagnostic services developed in the Czech Republic and those commonly used abroad, particularly in the EU. Financing seems to be one of the most important challenges concerning further R&D development in eHealth in the Czech Republic. Sharing information contained in individual medical records poses yet another challenge – in this case, for the security of eHealth applications.

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Title: The Development of eServices in an Enlarged EU: eGovernment and eHealth in the Czech Republic

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Abstract

In 2005, IPTS launched a project which aimed to assess the developments in eGoverment, 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, the Czech Republic.

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 eGoverment, 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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