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

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The mission of the IPTS is to provide customer-driven support to the EU policy-making process by researching science-based responses to policy challenges that have both a socio-economic and a scientific or technological dimension.

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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

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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

work through workshops, extended reviews and editing of the various interim reports. Data sources such as international and national survey data, literature, policy documents, and expert interviews were used to capture the most recent situation of the country.

In addition to national monographs describing 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 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 Poland

This report was produced by the consortium member from Poland: the Leon Kozminski Academy of Entrepreneurship and Management, TIGER Center (Transformation, Integration and Globalization Economic Research). It presents the results of the research on eGovernment and eHealth in Poland.

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

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

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

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

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

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

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LIST OF ABBREVIATIONS

AAPI   Access to Public Information
ADSL   Asymmetric Digital Subscriber Line
AIEPPA   Act on Informatisation of Entities Providing Public Acts
ASP   Active Server Pages
BIP   Public Information Bulletin
CD   Compact Disc
CD-R   Compact Disc Recordable
CELINA   Customs Declarations Processing System
CEPiK   Central Register of Vehicles and Drivers
CITTRU   The Centre for Innovations Technology Transfer and University Development
COM   European Commission
CPA   The Code of Administrative Procedure
CSO   Central Statistical Office
CSIOZ   Centre of Information Systems of Healthcare
DICOM   Digital Imaging and Communications in Medicine
DSL   Digital Subscriber Line
DVD   Digital Versatile Disc
ECG   Electrocardiogram
EDGE   Enhanced Data Rates for GSM Evolution
EDI network   Electronic Data Interchange
EEA   European Economic Area
eGEP   eGovernment Economics Project
EKUZ   The European Health Insurance Card
EWD-P   Electronic Data Interchange
ePUAP   Electronic Platform of Public Administration Services
ERDF   European Regional Development Fund
ESA   Electronic Signature Act (ESA)
EU   European Union
EU15   European Union with 15 Member States
EU25   European Union with 25 Member States
EU28   European Union with 28 Member States
EUR   Euro
EUROCET   European Registry on Organs, Cells and Tissues
EUROSTAT   European Statistical Office
FDI   Foreign Direct Investment
GDP   Gross Domestic Product
GIODO   Inspector General for the Protection of Personal Data
G-two-B   Government-to-Business
G-two-C   Government-to-Citizen
G-two-G   Government-to-Government
HIV   Human Immunodeficiency -Virus
HPC   The High-Performance Computing
ICT   Information and Communications Technology
ID   Identity Document
IDABC   Interoperable Delivery of European eGovernment Services to public
              Administrations, Businesses and Citizens
IS   Information Society
IT   Information Technology
KRUS   Agricultural Social Security Agency
KS-BLOZ   Register for Drugs and Healthcare Products

KSI ZUS	Complex Information System of the Social Security Agency
LAN	Local Area Network
LPP	Law on Public Procurement
LPPD	Law on Protection of Personal Data
MAN	Metropolitan Area Networks
MCC	Medical Care Continuity
MEN	Ministry of National Education and Sport
MTR	Mobile Termination Rates
NASK	Scientific and Academic IT Network
NCP	National Computerisation Plan
NDP	National Development Plan
NGO	Non Governmental Organisation
NHF	National Health Fund
NIK	The Supreme Chamber of Control
NIP	Tax Identification Number
NPI	National Informatisation Plan
NRDS	The National Regional Development Strategy for the Years 2007-2015
NUTS	The Nomenclature of Territorial Units for Statistical Purposes
OEC	The Office of the Electronic Communication
OTC	Over The Counter
OECD	Organisation for Economic and Cooperation
OP	Operational Program
OPI	Information Processing Centre
PCC	The Polish Competence Centre for eGovernment and eLearning
PESEL	Polish Universal Electronic Population Register
PIAP	Public Internet Access Points
PIB	Public Information Bulletin
PIIT	The Polish Chamber of Information Technology and Telecommunications
PIONIER	Program of Polish Optical Internet
PISA	Programme for International Student Assessment
PKI	Public Key Infrastructure
PLN	Polish New Złoty
PPB	Public Procurement Bulletin
PPP	Public-Private Partnership
PTI	The Polish Information Processing Society
PUAP	Platform of Public Administration Services
R&D	Research and Development
REGON	Register of National Economic Entities
ROP	Regional Operational Programmes
RTD	Research and Technology Development
RUM	Register of Medical Services
RZOZ	Registration System of Health Administration Units
SIMIK	Information System for Monitoring and Financial Control of Structural Funds and Cohesion
SMS	Small and Medium-sized Companies
SPO WKP	Sector Operational Programme Sectoral "Improvement of the Competitiveness of Enterprises
STAP	Teleinformatic Network of Public Administration
SWOR	Assisting System of Organizing Trails
SYRIUSZ	FOB - Beneficiary Registration System
TP S.A	Telekomunikacja Polska S.A (Stock Exchange)
UK	United Kingdom
UMTS	Universal Mobile Telecommunication System
UNUF	The Health Insurance Supervisory Agency
US	United States

USD	United States Dollar
VAT	Value Addend Tax
WHO	World Health Organisation
WAN	Wide Area Network
WiMAX	Worldwide Interoperability for Microwave Access
ZOZ	Health Administration Units
ZOZmai	Electronic mail system for Healthcare Institutions
ZPORR	Integrated Regional Operational Programme
ZUS	Social Security Agency
www	World Wide Web
XML	Extensible Mark-up Language

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INTRODUCTION

General data

Capital:	Warsaw
Language:	Polish
Population:	38 million
Currency:	1 zloty = 100 groszy
Area:	312,685 km^2 (120,727 square metres)
Political system:	Parliamentary democracy

According to the new Constitution of 2 April 1997:

- Legislative authority: The Sejm (460 deputies) and the Senate (100 senators) of the Republic of Poland, both elected in a national election for a 4 years term;
- Executive authority: The President (elected in a general election for a 5 years term) and the Council of Ministers;
- Judicial authority: The courts and tribunals.

Administrative units:

- Województwa/voivodships: 16
- Powiaty/counties: 308 counties and 65 cities with counties status
- Gminy/communities: 2,489

Map 1. Map of Poland

Source: www.poland.pl, 2000

Table 1. Poland - selected indicators

Change from the previous year in %	2002	2003	2004	2005	2006
GDP (real)	1.4	3.8	5.3	3.2	4.6
Industrial output (real)	1.1	8.4	12.6	4	8.7
Inflation rate (in %)	1.9%	0.8%	3.5%	2.1%	1%
Gross fixed capital formation (real)	-6.8	-0.1	6.3	6.2	8.2
Consumer prices (yearly average)	1.9	0.8	3.5	2.1	1.3
Unemployment (yearly average)	20	20	19.1	18.2	17.3
Budget balance (in % of GDP)	-3.3	-4.8	-3.9	-3.8	-4.2
Merchandise exports in million EUR	49,338	53,836	65,847	77,562	93,268
Merchandise imports in million EUR	57,039	58,913	70,399	79,804	97,164
Current account in million EUR	-5,399	-4,108	-8,670	-4,130	-6,273
FDI in million EUR (inflow, net)	4,371	4,067	10,292	7,703	11,093
Gross foreign debt (in % of GDP)	38.7	43.7	46.2	43.5	40.6
Average exchange rate: PLN/EUR	3.85	4.4	4.53	4.02	3.82
Average exchange rate: PLN/USD	4.08	3.89	3.64	3.23	3.14

Sources: National Bank of Poland, 2006; Central Statistical Office, Warsaw 2005 (www.stat.gov.pl)

Economic growth, inflation and unemployment

The beginning of transition witnessed a sharp decline of economic activity: GDP decreased by 11.6% in 1990 and 7.0% in 1991. In 1992, Poland returned to positive rates of economic growth, accelerating to more than 6% annually in the middle of the 1990's. In 1994-1997, the average GDP per capita growth amounted to 6.4%. Later in 1998-2001, this dynamic was lost due to the slow down in the structural reforms and increasing income gaps. The year of 2004 was very successful in terms of GDP growth, which reached 5.3% growth rate and was followed by a significant decline in 2005 - 3.2% (Graph 1).

Graph 1. Growth rate of GDP in years (1992-2006)
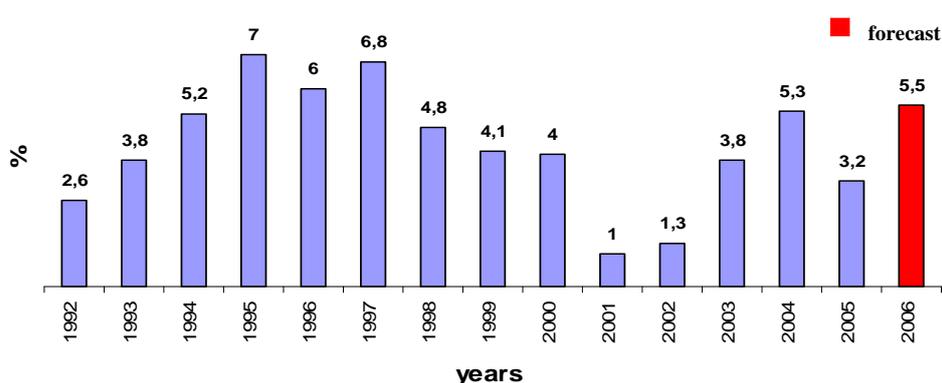
Source: Central Statistical Office, Warsaw 2006, forecast by Economist Intelligence Unit (www.paiz.gov.pl)

On the supply side, the main driving force was a rapid expansion of industrial production and service sectors through privatisation and liberalisation processes. The share of the service sector in the total GDP has grown from less than 50% before 1989 to 59.3% in 1992 and over 66% in 2004 (Ministry of Economy and Labour data). On the demand side, growth was mostly co-related to export expansion and private consumption.

On the demand side, the early transitional recession led to a substantial decline in private consumption and investments. In 1993-2000, Poland experienced high rates of growth in all three components of GDP, with particular importance of investments (which increased by more than 20% in real terms). In the period of economic stagnation between 2001-2002 their contribution was heavily negative and could not be compensated by a positive contribution of the individual consumption. The foreign savings in the form of direct investments fluctuating from approximately 2% to 6% of the GDP annually constitute a substantial source of funding of investments in Poland, especially in context of a relatively low level of domestic savings. The FDI inflows to Poland were obviously affected by the global trends, but some domestic factors should be blamed as well. One of the main reasons is the slowing down of the privatisation process since the year 2000. The latter trend was due to at least two reasons: firstly, the most attractive assets have been already privatised; secondly, there wasn't a clear concept of privatisation (Poland. International Economic Report 2003/2004, Warsaw School of Economics).

According to the macroeconomic forecast covering the period of 2005-2020, the average economic growth rate will amount to 5.0%. This means the increase of the annual real convergence rate from the current level of 2.2% to 2.5%. The growth of GDP, consumption and investments will occur as a result of the inflow of the Union transfers. In terms of supply, the increase of the long-term growth rate will be possible basically due to the integration with the European Union (additional 0.4 percentage point of the growth rate), a positive impact of the human capital (that will increase the potential growth by 0.3 percentage point) and the improvement in the co-ordination of the macroeconomic policies (contribution of 0.1 percentage point to the growth) (Poland. International Economic Report 2003/2004, Warsaw School of Economics). The basic source of the economic growth in terms of demand will be the investments and domestic consumption. The growth of the private consumption rate will be slightly slower than the GDP growth rate and will, on average, amount between 2.9% in 2005-2006 and 5.0% in 2007-2013 and 2014-2020 (Macroeconomic forecast, MoEL Economic Analyst Department, 2006).

A low and stable inflation rate, despite accelerated economic growth and fiscal expansion, was a relative achievement of the Polish monetary policy in the second half of transition. The years 2001-2003, were a period of a strong reduction in the inflation rate: the average annual inflation rate dropped from 5.5% in 2001 to 1.9% in 2002 and 0.8% in 2003. This positive trend should not, however, overshadow the negative trends in the Polish economy, such as high unemployment (Table 1). The job redundancy affected first of, all the people who were least productive, whereas those employed improved their productivity, and, as a consequence, the real salary level only slightly reacted to a strong increase of unemployment. In the group of unemployed people aged 30-44 years female unemployment rate is higher by almost a half than male unemployment rate (Central Statistical Office, Warsaw 2005). Education does not seem to protect women against unemployment. Unemployed women are better educated than unemployed men. Over 50% of unemployed women have secondary, post-secondary or tertiary education, while respective percentage among man amounts to about 32% (Central Statistical Office, Warsaw 2005). Since the year 2003, the number of unemployed people has been systematically decreasing in Poland, however the overall output still remains under its potential level.

Investment growth is crucial for sustainable economic growth. Foreign direct investments (FDI) inflow to Poland were obviously affected by global trends, but some domestic factors should be blamed as well. After 5 years of a low FDI inflow Poland received over EUR 11 billion of foreign investments (Table 1). One of the main reasons has been the slowing down of the privatisation process since 2000 (Word Annex 1). In 2004 and 2005, Poland has again become an attractive place for FDI. Poland's membership in the EU25 (with its 454 million people) and the country's economic potential (5.4 percent growth in 2004, an estimated 3.5 percent in 2005, and projected 4.5% in 2006) have increased its attractiveness. The EU accession has been perceived by many firms to have reduced Poland's country investment risks. One of the sectors of active FDI participation is the electronic sector. It is estimated that the number the foreign-owned firms in the above sector exceeds 250. There are among them such well known international concerns as Thomson Tubes and Displays S.A., Royal Philips Electronics N.V., France Telecom, Alcatel, Vivendi Universal, Lucent Technologies Network

Systems, Siemens AG, and Flextronics International. Electronic firms, in which foreign capital is engaged, and belongs, as a rule, to the group of large and medium-sized enterprises (employing more than 49 people each), whereas the group of small firms consists mainly of Polish-owned enterprises.[11]

The net exports of companies developed almost in the opposite way as investments. The growth of export should be perceived as an optimistic factor since it proves the ability of producers to operate in different and highly competitive foreign markets (Table 1).

The negative syndrome of the economy is the low and deteriorating position of Poland in the international competitiveness rankings. The World Economic Forum ranking has placed Poland at one of the last positions among European countries in 2005 Global Competitiveness Index - 48 position. The weakest point of Poland in this ranking is the negative assessment of public institutions, while it has a relatively positive assessment in terms of technological advancement.

Polish IT market

Poland has always been a net importer of ICT products since the early transition period which has been running a long-term deficit of the total value of the ICT trade. In the meantime, Poland has significantly increased its expenditure on IT market. The expenditure on IT market raised by 25% in the last two years. In 2005, the IT market in Poland reached EUR 4.62 billion (PLN 17.6 billion) in comparison to 2002 results of EUR 3.28 (PLN 12.5 billion) (Table 2).

Table 2. The total IT market in Poland 2002-2006 in billion EUR and PLN

	2002	2003	2004	2005	2006*
EUR	3.28	3.59	4.09	4.62	5.25
PLN	12.5	13.7	15.6	17.6	20

Source: Rzeczpospolita of 24 March 2006   *Rzeczpospolita of 02 February 2007

Even though, Poland has the biggest from all New Member States IT market, it has a three times lower ratio than the EU average in terms of number of computers per 100 citizens. It is forecasted, that the IT market will have doubled within five years period (2006-2010). In 2006, the IT market observed an increase of 13% and 12% forecasted for the year 2007 (Rzeczpospolita of 24 March 2006). According to the data for 2006 the IT market reached 5.26 billion EUR (PLN 20 billion PLN).

Since 12 September 1981, when the first IBM PC was sold, over 1,6 billion PCs have been bought. However, in 2006 only 230 million personal computers found a buyer. Still, it is an increase of 10.5% in comparison to the year 2005. The dynamism of the market has continuously slowed down (16% in 2005). In Poland, the sale has increased by almost 30% to 1,8 million PC. During the second quarter of the year 2006 the market has observed a 38% growth in comparison to the year 2005.

Demography indicators and population developments

The most important factor affecting the labour market and the information society development is the demographical structure. The demographic growth trend in Poland has been stable since the second half of the nineties and, by the year 2005, was already the seventh year in a row in which a real decline in population was recorded, as well as the third one with a negative birth rate. In the period of 2000-2005, as a result of a low birth rate and a negative balance of foreign migrations, the population of Poland dropped by over 106,000. At the end of 2005, it amounted to approximately 38.2 million people. It is, however, a significant growth in comparison to the first half of the twentieth century (Table 3).

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[11]   www.paiz.gov.pl

Table 3. Population changes in thousands in 1946-2005

Specification	2000	2003	2004	2005
	in thousand			
Population	38,263	38,219	38,191	38,157
Actual increase	-10	-28	-17	-17
Natural increase	10	-14	-7	-4
Live births	378	351	356	364
Deaths	368	365	363	368
Net of international migration for				
Permanent residence	-20	-14	-10	-13
Immigration	7	7	9	9
Emigration	27	21	19	22

Source: Central Statistical Office, Warsaw 2006 (www.stat.gov.pl)

The Polish nation is ageing. In the years 1990-2004, the number of children and youngsters (0-17 years of age) declined by 8.5 percentage points to 21.2% of the whole Polish population. Whereas the number of people of working age, accounted for 63.5% of the country population, increased by over 2.2 million. Life expectancy has been higher in case of the female population.

The number of people in an economically inactive age (men aged 65 and over, women aged 60 and over) has also been increasing in the last ten years. At the end of 2004, the proportion of this group in the total population amounted to 15.3%, i.e. 2.5 percentage points more when compared to the year 1990. The upward trend mentioned above will continue until 2010 when it will reach its maximum at the level of 27.3 million people (currently - 26.7 million). As a result of those processes, by 2020 the population of Poland will have decreased in relation to 2000 by approximately 2.5 million people (Word Annex 2). The ratio of the number of elderly people of an economically inactive age to the number of people of working age, will nearly double and will amount to 37% (in 2004 it was 19%). It is also worth noting that among the increasing number of elderly people there will be people who will be unable to manage on their own, including the disabled and people requiring care. It will constitute a challenge in terms of healthcare and social policy.

The number of people changing permanently their domicile dropped in 1990s, which was directly linked to the difficult situation on the labour market. In the context of a general decrease of the population mobility, a contrary trend can be observed in regards of the migration from the urban areas to the rural areas (National Development Plan 2007-2013). The increase of the urban population tendency to move to the rural areas that became visible in mid-1990s was partially caused by the wave of returns forced by an adverse change of the family or professional situation and more comfortable conditions outside the town or city (Table 4).

Table 4. Population changes in urban and rural areas

Specification	2000	2003	2004	2005
	In thousand			
Population	38,256	38,195	38,180	38,161
Of which females	19,714	19,702	19,702	19,700
Urban areas	23,691	23,543	23,490	23,541
Rural areas	14,565	14,652	14,690	14,710
Urban areas: in thousands	23,670	23,514	23,470	23,424
in %	61.9	61.6	61.5	61.5
Rural areas: in thousands	14,584	14,677	14,704	14,733
in %	38.1	38.4	38.5	38.6

Source: Central Statistical Office, Warsaw 2006 (www.stat.gov.pl)

As a consequence of Poland's accession to the EU, the situation of Poles taking up employment in the Member States has changed partially. The first year of the membership in the EU did not cause any massive wave of Polish migration abroad. In 2004, some 500,000 people (mostly young people) took up work abroad, i.e. slightly more than in the previous years. The seasonal migrations (over 80%) prevail, above all to Germany (app. 324,000). The EU enlargement has not caused so far any increased inflow of foreigners on the Polish labour market.

General government indicators of centralisation, revenues and redistribution

The legal basis defining the processes connected with the accumulation and allocation of public funds is the Law on Public Finances of 26 November 1998 (Journal of Laws No. 155, item 1 014) with later amendments.

National accounts are classified according to the institutional sectors, in which entities of the national economy (basic classification entities) are grouped based on their functions and purposes which they serve in the economy and are presented below. The biggest share of the gross value of the GDP results from non-financial corporations. In 2003, the non-financial corporations amounted to 41.1%, relative to 38.9% in 1995, followed by the households expenditures of 29.4% in 2003 (relative to 31.5% in 1995) (Graph 2).

Graph 2. Share of institutional sector in generation of GDP (current prices)
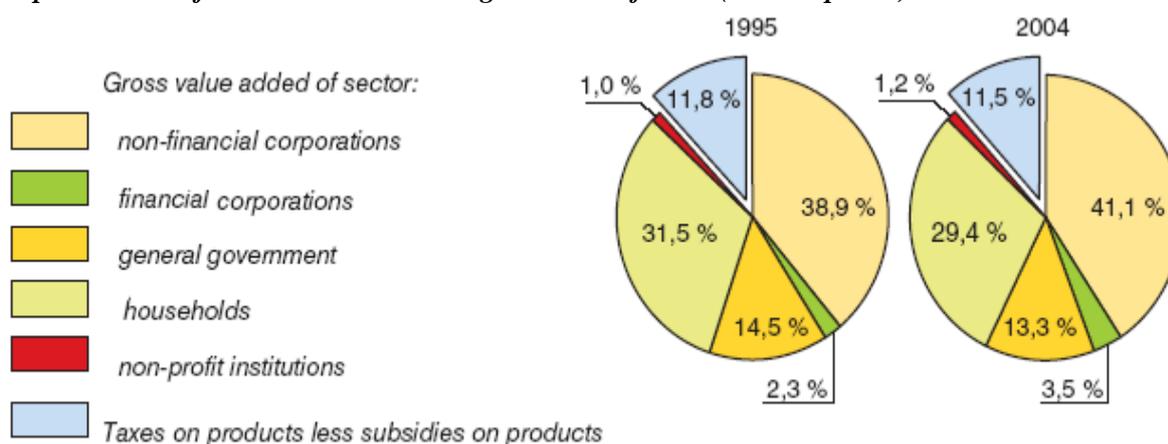
Source: Central Statistical Office, Warsaw 2006 (www.stat.gov.pl)

The smallest share of the gross value of the GDP results from financial corporations and non-profit institutions – 3.5% and 1.2% in 2003 (relative to 2.3% and 1.0% in 1995). Another important source of income to GDP is net taxes on products (fewer subsidies on products). The share of taxes on products less subsidies on products has been rather stable throughout the second half of the transition in 1995-2003, amounting to over 11.5% of the gross value added to national income.

Table 5. The CIT tax rate cut 1999-2004

Years	1999	2000	2001	2003	2004
Tax rat	34%	30%	28%	27%	19%

The tax domestic revenues have contributed significantly to the Polish state budget in the period of 2000-2005 and were over 98%. Indirect companies` tax was the main contributor 64.3%, followed by VAT over 41.9%, whereas the contribution from the corporate income tax, due to the successively tax rate cut to 19 per cent from 2004 has been decreasing in the years 2000-2004 and only in 2005 thanks to the conjuncture an increase could be observed (Tables 5 and 6).

Table 6. The tax revenues of the Polish state budget 2000-2004

Specification	2000	2003	2004	2005	in %
	in million EUR				
Domestic revenue	135 530	151 978	153 509	176 920	98.4
Tax revenue	119 644	135 228	135 571	155 860	86.7
of which:					
indirect taxes	79 671	95 443	100 992	115 672	64.3
of which:					
value added tax (VAT)	51 750	60 360	62 263	75 401	41.9
excise tax	27 312	34 388	37 964	39 479	22
income tax	39 956	39 783	34 578	40 185	22.4
corporate income tax	16 868	14 108	13 072	15 762	8.8
personal income tax	23 088	25 675	21 506	24 423	13.6
Non-tax revenue	15 886	16 750	17 938	21 060	11.7
of which:					
revenue of budgetary entities	6 523	6 616	8 197	10 844	6
payments from profit of the National Bank of Poland	2 206	4 681	4 057	4 168	2.3
receipts from customs duties	5 080	3 751	2 281	1 271	0.7
Foreign revenue	134	133	184	405	0.2
Payments to the state budget from European Union	-	-	2 588	2 447	1.4

Source: Central Statistical Office, Warsaw 2006 (www.stat.gov.pl)

Foreign revenue contributed only in 0.2% to the Polish state budget in 2005, whereas the European Union payments to the state budget made some 1.4 %. The contribution to the national budget varied also in particular regions (voivodship), depending on the regional income distribution. In general, there are big income gaps between the regions and so is the contribution to the gross value added among the regions, so as the north-western regions of Poland are richer, in comparison to the south-eastern regions (e.g. Śląskie, Zachodnio-pomorskie and Warmińsko-mazurskie voivodships). This phenomenon also reflects the differences in the expenditure per capita of the local self-government entities budgets in particular voivodship in 2004 (Map 2).

Map 2. Expenditure per capita of the local self-government entities budgets by voivodship in 2005
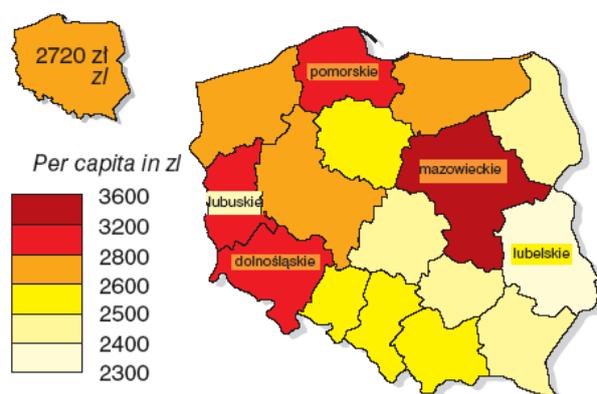
Source: Central Statistical Office, Warsaw 2006 (www.stat.gov.pl)

The voivodships with the highest expenditure per capita of the local self-government entities budgets in 2005 were Mazowieckie (EUR 942 (PLN 2,910)) followed by Dolnoślaskie, Lubuskie and Pomorskie voivodships with EUR 837 (PLN 3,200). The voivodships the lowest expenditure per capita of the local self-government entities budgets in 2005 was Lubuskie with only EUR 602 (PLN 2,300). The richest regions are also the most urbanised one. The size of the urban areas does not depend, however, on the general size of the regions but is rather determined by economic factors.

General healthcare sector indicators

According to a survey conducted by the European Foundation for the Improvement of Living and Working Conditions (European Foundation for the Improvement of Living and Working Conditions, 2004), the percentage of people being very and fairly satisfied with their own health in 2002 in Poland obtained 64.7%, whereas in the EU25 this number was almost 80% and in the EU15 almost 83%. Similarly, the health expenditure as a percentage of GDP was much lower in Poland in comparison to the EU (Table 7).

Table 7. Health satisfaction, number of doctors and health expenditure as a percentage of GDP for 2004

	Poland	**Ø EU15**	**Ø EU25**
Percentage satisfied with own health	64.7%	82.5%	79.8%
Prevalence of long-term illness	30.5%	13.8%	20.0%
Doctors per 100,000 inhabitants	228.0	233.0	250.6
Health expenditure as percentage of GDP	4.1%	7.4%	7.3%

Source: European Foundation for the Improvement of Living and Working Conditions, 2004

Poland does not differ significantly in the number of doctors per 100,000 inhabitants in comparison to the EU15 average, however, this number was significantly lower, in comparison to the EU25 average. This rather unsatisfactory trend could be explained by the decreasing number of medical staff in Poland, caused by the emigration of the medical personnel to the richer EU countries as a reaction to small salaries and other unfavourable work conditions. Among medical personnel, a reducing number of nurses and dentists have been particularly noticeable since 2000 (Table 8).

Table 8. Structure of medical personnel as of 2003

Specification	2000	2002	2003	2004
Doctors	85,031	88,070	87,617	83,372
Dentists	11,758	10,775	10,737	10,081
Pharmacists	22,161	24,421	25,217	22,170
Barber-surgeons	374	294	197	183
Nurses	189,632	185,892	181,291	177,501
of which masters of nursing	-	4,437	4,866	4,742
Midwives	21,997	21,743	21,129	21,090

Source: Central Statistical Office, Warsaw 2006 (www.stat.gov.pl)

The unfavourable conditions in healthcare were also caused both by a decrease of public expenditures, public investments in the healthcare system and the reduced number of public hospitals. Consequently, the number of public hospitals beds dropped from 213,826 in 1995 to 180,888, 182,684 and 179,493 in subsequent years of 2003, 2004 and 2005.[12] A similar trend was observed in the case of rehabilitation facilities and number of sanatoria for people with tuberculosis and pulmonary diseases.[13] As a result of the decrease of public expenditures in the healthcare system, the number of people who received actual healthcare benefits during the year has diminished (from 78.9% in 2003 to 75.4% in 2004) (Central Statistical Office, Warsaw 2005).

Whereas, the number of patients admitted to general hospitals, increased to 66,160 in 2003 relatively to 51,430 in 1995 (Polish Statistical Office 2004). In 2003, there were 68.8 beds per 10 thousand population in patient healthcare facilities. The average patient stay was 7.7 days in 2003 relatively to 10.8 days in 1995. Both the number of detoxification centres as well as addiction recovery centres increased significantly between 2003, 9,887 and 7,893 respectively, relatively to 5,854 and 2,274 in 1995 (Central Statistical Office, 2004).

Despite the above mentioned problems of the Polish medical system, there were also positive trends observed, such as the growing number of emergency medical services in Poland between 2003-2004. Even though, it is a short term observation, the size of the progress is significant. The latter in particularly refers to such services as: centres of rescue information - 15 services in 2003 relative to 34 in 2004, hospital emergency wards - 38 services in 2003 relative to 100 in 2004, as well as admission-rooms- 98 services in 2003 relative to 148 in 2004 (Central Statistical Office, Warsaw 2005).

The general number of pharmacies between 1995-2005 has increased dramatically. In 2005, there were 10,019 public pharmacies, 10,002 of which were private, whereas in 1995, these numbers amounted to 6,536 and 5,994 respectively. The number of pharmaceutical outlets in rural areas (909) significantly exceeded its number in urban areas (32). The latter resulted from the need for pharmaceutical outlets in rural areas (Table 9).

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[12]   www.csioz.gov.pl
[13]   www.stat.gov.pl

Table 9. Public pharmacies and pharmaceutical outlets

Specification	1995	2000	2003	2004	2005		
					total	urban areas	rural areas
Pharmacies	6,536	8,318	9,585	9,758	10,019	8,287	1,732
of which private	5,994	7,739	9,512	9,736	10,002	8,270	1,732
Pharmaceutical outlets	227	271	553	815	941	32	909
Population per pharmacy and pharmaceutical outlet in thousand	5.7	4.5	3.8	3.6	3.5	2.8	5.6

Source: Central Statistical Office, Warsaw 2006 (www.stat.gov.pl)

According to the Annual report from 2006 of the Centre of Information Systems of Healthcare there has been a steady growth of medical personnel in Poland in the last few years, e.g. in 2005, there were 126,576 (in 2004 – 125,053) medical personnel entitled to carry out the profession and respectively 34,379 (33,957) dentists and 24,499 (23,676) pharmacists.

General ICT usage indicators

ICT expenditure reached 5.5% of the GDP in Poland. Nevertheless, the percentage of households which have Internet access at home and the number of broadband connections related to the population are very low compared to the weighed average of the EU25 (Table 10).

Table 10. Selected ICT development indicators in Poland, EU15 and EU25

	Poland	**Ø EU15**	**Ø EU25**
Households with Internet access	26%	45%	42%
Broadband penetration	0.5%	7.6%	6.5%
ICT expenditure as percentage of GDP	5.5%	3.2%	2.6%
Digital Divide Index (DIDIX)	45.8	53.0	50.1

Source: eUsers 2005 (www.euser-eu.org)[14]

Similarly, Poland has performed much worse in comparison to other EU members in comparison of diffusion of PCs, Internet connections, phone lines, mobile subscriptions and TV sets, and share of population online. The latter is reflected in the low index UN Telecom Index - 0.25% exceeding only Lithuania, Bulgaria and Romania (Word Annex 3). The internet connection is mostly provided in urban areas. Almost 20% of all network users come from the Warsaw district in comparison to Kielce, Jelenia Góra and Koszalin with only 1% share (Central Statistical Office 2005).

According to a recent survey by the Central Statistical Office data for 2006,[15] 45% of Polish citizens have a computer, whereas in 2005, some 40% of the households surveyed had a personal computer. The ratio was considerably higher in urban (49%) than in the rural areas (30%). The Internet penetration has seen a continual growth, starting from 26% in 2004, 30% and reaching a level of 34%

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[14]   Households with Internet access = Percentage of households that have Internet access at home 2004; Broadband penetration: Number of broadband in 7/2004 connections related to population; user group not specified; Price for Internet use basket: for 40 hours using discounted PSTN rates; ICT expenditure: Annual expenditure for ICT hardware, equipment, software and other services in 2004, as percentage of GDP; The DIDIX is a compound index comprised of four indices, and measures diffusion of computer and Internet access and use amongst the four identified 'at risk' groups along the dimensions gender, age, education and income in relation to the population average. The lower the Index value the more severe is the divide, with parity resulting in a value of 100.

[15]   Central Statistical Office carried out the survey on ICT usage in households and by individuals in Poland for the first time in 2004. The survey in Poland was carried out in strict accordance with the requirements of the European Statistical Office (Eurostat), in terms of its methodology and the model questionnaire.

in 2006, some 22% of which use broadband connection to access the Internet (Central Statistical Office, 2006). Taking into account the monthly income of households, an understandable relationship can be observed between its amount and the proportion of equipment of households with a personal computer: within the group of households with a net monthly income of over EUR 1 889 (PLN 7,200) as many as 86% possessed such a computer. The ratio was also high in the group of households with a net income between EUR 882 (PLN 3,361) and EUR 1890 (7,200) - 77%, but distinctly lower for families with an income between EUR 378 (PLN 1,441) and EUR 881 (PLN 3,360) and below EUR 378 (PLN 1,441) - 48% and 21% respectively (Table 11).

Table 11. Households equipped with a personal computer by location, income and composition

	Mobile telephone	Mobile telephone with access to Internet		Personal computer		Internet	
	2005	**2005**	**2004**	**2005**	**2004**	**2005**	**2004**
Total	62%	23%	19%	40%	36%	30%	26%
Towns with area of living							
over 100 000 of population	68%	32%	26%	49%	44%	40%	34%
up to 100 000 of population	62%	22%	18%	40%	39%	32%	28%
Rural areas	55%	16%	13%	30%	25%	19%	15%
Net monthly income groups in EUR (PLN)							
above 1 889 (7 200)	95%	59%	41%	86%	73%	71%	68%
Up to 1 889 (7 200)	89%	48%	35%	77%	69%	67%	54%
Up to 881 (3 360)	72%	26%	22%	48%	43%	37%	30%
below 378 (1 440)	44%	14%	10%	21%	16%	14%	12%

Source: Central Statistical Office, Warsaw 2005 (www.stat.gov.pl)

According to a survey conducted in mid 2004 by the Central Statistical Office, among 4 000 households and 9,000 individuals (aged 16 to 74), there was a correlation between equipping the household with a personal computer and dependent children. In the group of households surveyed consisting of two adults without children, only one out of five (19%) owned a computer, while in the group of such households with children the ratio was 55%. Also nearly a half (48%) of the households consisting of one adult person with children owned a computer.

According to a recent survey by the Central Statistical Office, 45% of Polish citizens have a computer, 22% of which use a broadband connection to access the Internet. The Internet penetration has been on a continual growth, starting from 22% in 2004 and reaching the level of 34% in 2006 (Central Statistical Office, 2006).

In terms of Internet access, the number of broadband internet users in Poland has been steadily increasing between 2001-2008 (Word Annex 4). The take-up rates for the dial-up access via an analogue modem were similar among the enterprise groups and equalled 60% for large enterprises, 60% for medium and 50% for the small ones (Central Statistical Office, Warsaw 2005) (Word Annex 5).

The results, of the survey on the usage of ICT in enterprises conducted in 2004, showed that in general the level of indexes of computer utilisation and access to the Internet was high; therefore, indexes in 2005 have not increased significantly. The percentage of companies using computers in 2005 amounted to 93%, but having the Internet access to 87% (growth in relation to the previous year, correspondingly by 1 and 2%) (Word Annex 6).

In the analysed year 2005, there had been observed a very high percentage of companies with access to the Internet - 87%. (Central Statistical Office, Warsaw 2005). In almost all analysed business sections the share of companies with the Internet access increased. The exception was the section "Informatics", where this percentage in 2005 amounted to 99% and decreased by 1% in comparison to the year 2004, which could be perceived as a mistake in statistics. The business activity with the most Internet access is the financial intermediary and media related industry (film, radio and TV). A significant disparity can be observed in the percentage of enterprises with a broadband connection depending on the profile of their activity. The highest rates were scored by Computer and related activities (86%) and Motion picture, video, radio and television activities (72%), the lowest by Manufacturing and Construction (24% each) (Word Annexes 6 and 7).

According to the most recent survey from 2006 (Central Statistical Office, Warsaw 2006) over 45% of households are equipped with computers (93% in enterprises). Almost 36% of households and 89% of enterprises have access to internet of which 22% of households and 46% of enterprises have a broadband connection. In 2006, over 43% respondents use regularly computer and 34% internet.

To sum up, over the last ten years, Poland has seen positive rates of economic growth, relatively low inflation and intensive FDI inflows. Unemployment has remained the biggest problem for the Polish economy during this time. The latter, together with the ageing population and increasing labour migration abroad will create the main challenge for the Polish labour market. Future economic growth will, therefore, depend on such factors as human capital, financial and real capital, mature institutions, magnitude of the markets and policy quality. The role of human capital is increasing in the current phase of liberalisation, integration and in particular in the scientific and technological revolution connected with the expansion of ICT and knowledge based economy. For this reason, the high quality of education at all levels, offering the wide range of eLearning programmes as well as increasing spending on research and development will act as one of the key growth stimulants (Kołodko 2002).

I. CURRENT GOVERNMENT AND HEALTH INSTITUTIONS AND SYSTEMS AT THE NATIONAL AND REGIONAL LEVELS IN POLAND

I.1. Current government institutions and systems at the national and regional levels in Poland

I.1.1. The institutional structure of the general government

In accordance with the Constitution of 2 April 1997 (took effect on 17 October 1997), the legislative powers in Poland are represented by the Parliament, which consists of two chambers: the Sejm, which is made up of 460 members elected in proportional system and the Senate with 100 senators elected every 4 years. The executive powers are vested in the President elected for a five-year term (universal suffrage; ballot system) and allowed to serve for two consecutive terms and the Council of Ministers. The judicial authority composes of courts and tribunals. The Parliament: Sejm and Senate of the Republic of Poland. The term lasts for 4 years.

The Prime Minister chairs the Polish government. The President of the Republic nominates a Prime Minister who proposes the composition of a Council of Ministers and within 14 days the Sejm may appoint the proposed Prime Minister together with other members of a Council of Ministers. The Council of Ministers consists of ministers who govern one or more of the 32 areas of central administration as well as other chairmen of various Committees that are included in the Council of Ministers. The Council of Ministers composes of the President of the Council of Ministers (Prime Minister) and ministers. Vice-presidents of the Council of Ministers (Deputy Prime Ministers) may be also appointed. On 5 May 2006 the president appointed new ministers to the Cabinet. Currently, the Council of Ministers composes of four vice-presidents and 19 ministries.[16]

The Council of Ministers is also represented in the different voivodships of the country by its voivodes or regional governors. The 16 voivodes supervise the state administration and the government within the territory of their voivodships. The detailed institutional structure of general government division is presented in the graph below (Graph 3). There are also several central organs and agencies which constitute a part of the governmental administration.[17]

I.1.2. The structure of the country territorial division

As a result of the administrative reform of 1998, a new three-tier division of local self-government was introduced. As a part of the reform, self-government counties and self-government voivodships were introduced. Poland as a unitary state was divided into 16 voivodships (Map 3). The voivodships differ by the size of the area, number of population, number of counties, as well as the income and expenditure structure of GDP. There were also 308 counties and 65 cities with counties status established. The basic administrative units of the self-governmental system in Poland, 2,478 communities (gmina) were untouched. This change did not affect voivodships, even though there is discussion about the establishment of a new 17th province. In Poland, there are also 40,325 village administrator's offices acting as auxiliary entities in communities (Central Statistical Office, 2003).

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[16] The Council of Ministers consists of: the Ministry of Agriculture and Rural Development, the Ministry of Construction, the Ministry of Economy, the Ministry of Environment, the Ministry of Culture and National Heritage, the Ministry of Finance, the Ministry of Foreign Affairs, the Ministry of Health, the Ministry of Interior and Administration, the Ministry of Justice, the Ministry of Labour and Social Policy, the Ministry of National Defence, the Ministry of National Education, the Ministry of Marine Economy, the Ministry of Regional Development, the Ministry of Science and Higher Education, the Ministry of Sport, the Ministry of State Treasury, the Ministry of Transport

[17] Headquarters of the Police, Headquarters of the Border Guards, State Committee for Scientific Research, Supreme Chamber of Control, National Bank of Poland, Office for Competition and Consumer Protection, Office for State Protection, Office of Civil Service, Office of Public Procurement, Office for Technical Inspection, Central Statistical Office, State Archives Office, Agricultural Market Agency, National Broadcasting Council, Office of Electronic Communications.

Graph 3: The devolution of Poland

National Level

Bicameral parliament (legislative power)		President of the Republic,	Government (executive power)			Constitutional Court	
Senate (upper chamber): 100 senators elected by simple majority for a four-year term in 40 constituencies. There are 2-4 senators in each constituency.	***Sejm*** (lower chamber); 460 deputies elected for a four-year term in 41 constituencies. No fewer than 7 deputies must be elected in each constituency.	elected by direct universal suffrage for a five-year term, allowed to serve for two consecutive terms	The government is responsible for conducting the Republic's internal and external policy	**Prime Minister;** appointed by the President of the Republic	**Ministers;** nominated and revoked by President on Prime Minister's proposal.	Responsible for ruling on the constitutionality of laws and treaties	Judges are appointed by the Sejm for a nine-year term

The President of the Republic appoints the prime Minister and on proposal of the prime Minister the members of Government

The Government is responsible to the Sejm

Appointed and dismissed by the Prime Minister on Proposal of the Minister responsible for public administration

Regional Level

16 *Wojewodztwa* or Voivodships (regions) (introduced 1 January 1999)			
Sejmik Wojewodztwa (assembly or council of voivodships, or voivodal diet); members are elected by direct suffrage.	**Voivod** (*wojewoda*) and vice-voivods (governor or prefect); the voivod is the representative of the Prime Minister of the Republic of Poland in the region. He is appointed and dismissed by the Prime Minister upon proposal by the minister responsible for public administration. The voivod represents central government at regional level.	**Executive committee** (5 members); elected by the *sejmik*, headed by the elected Marshal. It exercises executive authority at regional level.	**Marshal** (*Marszalek*); elected by an absolute majority of the *sejmik*, president of the executive committee.

Local Level

315 *powiaty* (counties or districts)		
Council (decision-making body); directly elected by list for a four-year term in the system of proportional representation.	***Powiat*** executive committee; responsible for enacting the council's decisions.	***Starosta*** (President); elected by the council by an absolute majority, president of the executive committee and responsible for monitoring the proper fulfilment of the powiat's duties.

64 urban *gminas*

these authorities of larger towns have powers usually granted to the districts. They operate in the same way as other municipalities.

It exists no subordination link

± 2500 *gminy* (rural communes)		
Municipal council; elected every four years by direct secret vote. The number of members varies from 12 to 45 according to the municipality's population. The *Gmina* Council is elected in general elections and in *gminas* over 20 000 inhabitants in the system of proportional representation.	**Chair and vice-chair(s);** elected by the members of the municipal council. There may be between one and three vice-chairs.	**Executive Committee;** elected by the municipal council, it has between three and five members, comprising: - the head of the municipality (*wojt*) in rural areas - the mayor (*burmistrz*) of municipalities with a population of more than 100 000 - the president (*prezydent*) of urban municipalities with a population of more than 100 000 not necessarily belonging to the municipal council.

Villages; municipalities are formed by a number of villages and comprise a general assembly, a *solty* (head) and council leader, both elected by direct, secret ballot by the local population.

City of Warsaw

special status. The capital is governed by the Law on the Autonomous Management of the Capital of 25 March 1994, amended in 1995.

Source: www.cor.europa.eu

Map 3. The administrative division in Poland in 2005 and the territorial units for statistical purposes in Poland

Level	Name	Amount
NUTS I	Poland	1
NUTS II	voivodships	16
NUTS III	sub regions	44
NUTS IV	counties	379
NUTS V	communities	2 478

Source: Central Statistical Office, Warsaw 2006 (www.stat.gov.pl)

The counties (powiaty) were established as the second tier, after the community, of the Polish self-government on 1 January 1999, pursuant to the art. 4 of the Act on the District Self-government of 5 June 1998 (The Act on County Self-government 1998) The counties carry out certain statutory tasks, namely: public education, healthcare and promotion, social welfare, pro-family policy, assistance to the handicapped, transportation and public roads, culture and protection of cultural monuments, physical culture and tourism, property management, land use and building supervision, water management, environmental protection, agriculture, forestry and inland fishing, public order and local public security, flood and fire protection, unemployment and stimulating the local labour market, protection of consumer rights, maintenance of county public utility and administration buildings and facilities, national defence, promotion of the county, cooperation with Non Government Organisations (NGOs).

The voivodships (województwa) as the third pillar of the local government system was introduced also on 1 January 1999. Voivodships have an independent legal status and may promulgate local law. The Prime Minister and a voivode supervise the activities of the voivodship government, and the regional accounting chamber oversees its financial activities. The biggest self-government tier has important state administrative responsibilities. In respect to size (number of residents and area) they are the counterparts of regions in the countries of the European Union, and the government and Sejm had precisely this in mind when they demarcated and assigned tasks to the voivodships (Kowalczyk, 2000).

The largest voivodship, in terms of area (35,559 km^2) and population (5,157 million), is Mazowieckie and the smallest voivodship, in terms of area, is Opolskie (9,412 km^2) and in terms of population, is Lubuskie (1,009 million).

The Polish local self-governments may perform public tasks, which are not reserved by the Constitution or statutes to the organs of other public authorities. The only mentioned layer of the self-government is the community (gmina). This is also the basic unit of the local self-governments and the only one, which is a subject to the constitutional legal protection. The Constitution allows establishing other units of regional and/or local self-governments. Units of local self-governments possess independent legal status and have rights of ownership and other property rights. According to the article 167 of the Constitution, the state has to assure public funds adequate for the performance of the duties assigned to the units of the local self-governments. The revenues of units of the local self-governments by the Constitution have to consist of their own revenues as well as general subsidies and specific grants from the State Budget. Duties of self-governments are performed through the constitutive and executive organs. The elections to constitutive organs are universal, direct, and equal and shall be conducted by secret ballot. All citizens of the community may decide, by means of a referendum, on the matters concerning their community, including the dismissal of an organ of the local self-government established by the direct election. Actions performed by any self-government are subject to review by the Prime Minister and voivodes regarding the legality and Regional Audit Chambers while controlling the financial matters. Only on a motion of the Prime Minister, the Sejm may dissolve a constitutive organ of the local self-government if it has flagrantly violated the Constitution or a statute.

The activities of the community are the subject of the Act on the Local Self-government of 8 March 1990 (The Act on the Local Self-government 1990). There are two main types of responsibilities of community. The first one is the obligatory assigned by parliamentary acts and includes: spatial development, real estate management, environmental protection, local roads, streets, bridges and traffic control, water supply, sewage, waste disposal, electricity and gas supply, local public transportation, healthcare, social services, local housing, public education, sport and tourism, libraries, maintenance of marketplaces, public parks and cemeteries, local public security and fire protection, maintenance of public utility buildings, family friendly policy, spread of self-governance idea, co-operation with NGOs (The Act on Local Self-government 1990).

The second responsibility relates to the tasks delegated by the state government by specific legislation or mutual agreement. The latter covers the registration of marriages, births and deaths, the provision of identity cards and drivers licenses, civil defence, sanitation, environmental protection and building control.

Organs of the voivodship government are neither supervisory bodies of the county and municipality nor organs of a higher level in administrative proceedings. Pursuant to the art. 11 of the Act on the Voivodship Self-government of 5 June 1998 (Act on Voivodship Self-government 1998) the province government drafts the development strategy of the voivodship, particularly concerning the following goals: development of national, civic and cultural consciousness, stimulation of economic activity, enhancement of competition and innovation in the voivodship economy, preservation of the cultural and natural environment, taking into account the future generation, formation and preservation of spatial order.

In virtue of the Act on the Voivodship Self-government (art. 14) the voivodship executes power in the area of: public education, including higher education, healthcare and promotion, culture and protection of cultural monuments, social welfare, pro-family policy, modernization of rural areas, spatial development, environmental protection, water management, flood control, public transportation and roads, physical culture and tourism, protection of consumer rights, national defence, public safety, unemployment and stimulation of the local labour market.

The province has, as the only tier, the legal mean to determine the main goals of international cooperation, to set geographic priorities of the future cooperation and to plan to join international regional associations (art. 79).

Since 1 January 1999 the province has two administrative roles. On one hand, it is the above mentioned self-government, on the other hand, the state, represented by a voivode. The competences of the government in the region regulate the Act on the Governmental Administration in Voivodship of 5 June 1998 (The Act on governmental administration in voivodship 1998).

According to this Act (art. 2), the state administration is performed in the province by: voivode, organs of state administration subordinate to individual departments, such as defence, finance and internal affairs, organs of regional government by virtue of agreements with the state administration or by legislation, heads of state administrative institutions located at the county level and subordinate to the chairman (starosta) of the county, organs of other local governments by virtue of agreements with the state administration or by legislation (Kowalczyk 2000).

The division of tasks between the voivodship and the voivodes was subject of amendments that came into force on 1 January 2006. These changes were brought by The Act on Changes of Some Acts concerning changes of task and competences of regional administration of 29 June 2005 (The Act on Changes of some acts concerning changes of task and competences for regional administration 2005). The regulation changed over 30 legal acts and transmitted task and competences form the voivode to the marshal's office, the county and the community making Poland a more decentralized country.

At the regional and local level strategies regarding development of eGovernment services and tools are designed at the suitable administrative layer. In regard to regional and local levels of eGovernment services provision the administration has to set up roles in accordance with the national strategy.

I.1.3. Self-government revenues

Counting upon the Act on the Local Self-government (art. 54), the revenues of the community are taxes, charges and other income sources as well as revenues from the property of the community and general subsidies from the state budget. Additionally, the municipality may also have revenues as special purpose grants for carrying out commissioned tasks, proceeds from the local taxation of residents, bequests, donations and other not defined sources.

The inflows from the personal income tax revenue to the self-government budget have been gradually increasing during the whole transformation period. In 2005, the share of personal income tax revenues transferred to communities budgets amounted to 39% in comparison to 27% in 2003 (Table 12).

Table 12. The self-government share in the tax revenues

	Personal Income Tax			Corporate Income Tax	
	2003	2004	2005	2003	2004
Community	27.60%	35.72%	39.34%	5%	6.71%
County	1%	8.40%	10.25%	0%	1.40%
Voivodship	1.50%	1.60%	1.60%	0.50%	15.90%

Source: The Act on income of territorial self-government 2003

Similar growth could be observed in the case of the contribution of corporate income tax revenues toward community budgets, 6.71% in 2004 relatively to 5% in 2003. In 2003, there was no contribution corporate income taxes to counties. The main source of the budget revenue in counties were general subsidies and direct transfers.

I.2.   The institutional framework of the healthcare system

I.2.1.   The general healthcare system institutional division overview

The present Polish healthcare system consists of two main bodies: The Ministry of Health and The National Health Fund (NHF) (Narodowy Fundusz Zdrowia). The Ministry of Health is responsible for designating general healthcare strategies and NHF for provision of health services to citizens. The responsibilities of the Ministry of Health were redefined in 1991 in Healthcare Institutions Act. It became responsible for the health policy, training, research and specialized facilities. Furthermore, regional authorities became responsible for organization and financing tertiary care and local authorities became responsible for primary and secondary care. The role of The Ministry of Health evolves from healthcare founder and provider to policy-maker and regulator (Healthcare Systems in Transition, 1999) Organs and units supervised and subordinated to Minister of Health: 12 Medical Universities, 41 University Hospitals, 16 Research and Development Units and 1 Central Medical Library, Chief Pharmaceutical Inspector, Chief Sanitary Inspector and 37 other units (Ministry of Health 2006).

In accordance with the Constitution of 2 April 1997, each person has the right to have his/her health protected. The healthcare system should follow the rule of equal access to healthcare services, financed from public funds. The services should be provided to all citizens, irrespective of their material situation. The conditions for, and scope of, the provision of services have been established by the statute. In the year 1997 with the implementation of the Universal Health Insurance Act (The Universal Health Insurance Act 1997) the former tax-based system was phased out and replaced by a healthcare system. The system was financed through autonomous health insurance funds (16 regional Sick Funds Kasy Chorych - and one separate fund for uniformed public employees, e.g. for army and railroad workers). The main principles behind the reform were universal and mandatory participation, social solidarity, self-government and independence of sickness funds. The state was the guarantee of the insurance security. The patient could choose the Sick Fund and there was competition between the Funds.

The law on general insurance in the NHF, enforced on the 1 April 2003 (The law on general insurance in the National Health Fund 2003), brought many changes to the Polish healthcare system. The newly established NHF took over the function of all 17 independent regional Sick Funds and previously independent regional Sick Funds became regional branches of the NHF. The Fund composes of one central office in Warsaw and 16 regional branches established according to the territorial division of the country voivodships. In addition, some regional branches have also their local offices situated outside the capitals of voivodships. Currently, the conditions of providing healthcare services to beneficiaries and the scope of services, which they are entitled to, are regulated by the Law of 27 August 2004 on healthcare services financed from public funds (The law on healthcare services financed from public funds of 2004. According to the legal act mentioned above, the NHF is responsible for assuring healthcare services for beneficiaries (people covered by the general health insurance on compulsory or voluntary basis). The Fund finances healthcare services and assures reimbursement of medicines from the planned budgetary funds. The main aim of the Law was to improve the healthcare status of population, to ensure universal access to high quality services, to increase the effectiveness, to ensure stable funding of healthcare and to control expenditures. Due to the fact, that there is only one Fund, the patient can not choose between insurance institutions based on their quality.

The NHF with an annual budget of over EUR 9.18 billion (PLN 35 billion) (Financial Plan for 2006 of the National Health Fund) can conclude contracts with public and non-public healthcare providers: doctors who practice within the healthcare system (physicians, dentists), public and non-public healthcare units (hospitals, first aid stations, dispensaries, health centres), as well as surgeries (individual, individual specialist, group surgeries) (NHF, 2006). These partners are legally obliged to provide healthcare services within the general health insurance system, answer emergency calls and make list of people waiting for treatment. Also in the case of a sudden illness, accident, injury,

intoxication or a life threat, a patient receives necessary medical benefits without a referral. In the case of a lack of the referral or the proof of his/her insurance status, a patient is obliged to cover costs of a treatment by themselves. The same obligation arises in the case of a treatment provided by a healthcare unit, which has no contract with the NHF. Only in the case of a sudden illness, injury, intoxication, a life threat or a childbirth the service is immediate regardless of insurance status proof.

In the case of a need of outpatient specialist treatment, a referral of a doctor who practices within the healthcare system is required. No referral is required to following specialists: obstetrician, dentist, dermatologist, venerologist, oncologist, oculist, psychiatrist, and for following people: suffering from tuberculosis, infected with HIV, war invalids and persecuted persons, addicted to alcohol, stupefacient and psychoactive substances - in the case of addiction treatment (The Act on Healthcare Services Financed From Public Funds 2004).

Prescriptions can be redeemed in generally available pharmacies on presenting the form. Prescribed medicines can be purchased: for a lump-sum price (in the case of basic medicines - EUR 0.83 (PLN 3.20) and in the case of magisterial preparations - EUR 1.31 (PLN 5); for 30 or 50% of the price of a medicine (in the case of supplementary medicines); for full price in the case of medicines which are not included in the reimbursed drugs list. Currently, the list consists of over 2 500 drugs (NHF, 2006).

I.2.2. Primary, secondary and tertiary healthcare services

Primary healthcare is managed by the autonomous Health Administration Units (ZOZ) (Zakład Opieki Zdrowotnej), and is provided near to where people live, work or study. Over half of the 3,300 primary healthcare centres were administered by the voivodship, and at least one third by local governments-communities. In rural areas, primary care is provided through small polyclinics or outpatient centres staffed by an internal medicine specialist, an obstetrician-gynaecologist, a paediatrician, a dentist, and a midwife and nursing staff. In urban areas, primary care services are provided in large polyclinics, which also have some specialist services and diagnostic facilities. Emergency care is provided by district ambulance services and in emergency care units. (Highlights on Health in Poland, WHO 2001)

The first level of outpatient secondary care is provided in polyclinics run by the regional healthcare authorities (ZOZs or the voivodships) or by local authorities in large municipalities. Hospitals are categorized into acute hospitals, chronic care hospitals, nursing homes and hospices. Each has an attached area and they have to meet nationally defined accreditation criteria given by the Ministry of Health. Day care and home care will be developed in the future as well as a move of long-term care out of hospitals. There is no privatisation programme, but some hospitals have restored their original owners, the church or other non-governmental organization (Highlights on Health in Poland, WHO 2001).

In 2005, there were 782 (in 2004 - 766) hospitals equipped with almost 180,000 beds. There are 624 public hospitals (175,106 beds) of which 552 (567) are owned by the self-government and 17 (16) owned by the Ministry of Health or other central administration body (not included the Ministry of National Defence and the Ministry of Internal Affairs and Administration). There were also 170 (142) non-public hospitals providing 8,215 (7,578) beds (CSIOZ, 2006).

The state-owned pharmacies, dental practices and private medical practices have been privatised in most cases. Hospitals have remained in the public sector and there are only few non-government hospitals mainly run by voluntary organizations. There are also few private-for-profit hospitals in the country. Additionally, the Ministry of National Defence operates 24 hospitals and the Ministry of Internal Affairs and Administration operates 29 such institutions (Ministry of Health, 2006).

I.2.3. The structure of pharmaceuticals, pharmacies and clinical research

In 2005, there were 12,450 stationary pharmacies in Poland. The value of the whole pharmaceutical market in the same year amounted to EUR 4.96 billion (PLN 18.9 billion) and has grown to over EUR 5.25 billion (PLN 20 billion) in 2006 (Word Annex 8) (Przybylski 2006).

The special structure of pharmacies reveals a significant differences among regions. The biggest concentration of pharmacies is observed in the regions characterised by relatively higher income per person, so as Śląskie and Mazowieckie voivodships (Word Annex 9). According to the Pharmaceutical Act (art. 99), each company must not own in one voivodship more than 1% of all registered pharmacy stores (The Pharmaceutical Act 2001). In 2006, there were five major chains of pharmacies spread across the country: PGF (300 stores), Orfe (170 stores), Farmacol (135 stores), Euro Apteka (64 stores) and Cefarma Białystok (48 stores). On average, Poland has had one pharmacy for each 4 thousand inhabitants (Zwierzchowski 2006.) The annual average turnover of one pharmacy is approximately EUR 0.52 million (PLN 2 million) (Pharma Expert 2006).

Poland is, after France, the biggest drug consumer market per capita (amount of packages sold) (Cabaj 2006). Also, the market value of medicine without prescription is flourishing and in 2006 the total value of the above mentioned transactions amounted to EUR 1.31 billion (PLN 5 billion) (Zwierzchowski 2006).

Drug prices in Poland are among the lowest in Europe. The prices of domestically produced drugs have remained lower than those of equivalent imported drugs. The average price of a Polish drug package is EUR 2.1 (PLN 8) and for a foreign drug package EUR 6.56 (PLN 25) (Word Annex 10). Import of foreign drugs has risen and more drugs are being prescribed, both increasing healthcare costs. The share of domestic and imported medicines in the total value of pharmaceutical have been rather stable over the last two years 2005-2007, with a significant advantage of imported drugs 61% relative to domestic ones 39% for 2005 (Word Annex 11). PMR forecasts that sales of domestically produced pharmaceuticals will grow more rapidly than imports: domestic by nearly 7% annually in the period forecasted, imports by nearly 4% respectively. From November 2005, in Polish pharmacies, one was able to find drugs from parallel import of a cheaper market. According to the Supreme Medical Chamber, the savings made on the parallel import exceeded EUR 10.5 million (PLN 40 million).

Since the 1980s, when clinical research had started in Poland, some EUR 230.97 - 262.46 million (PLN 880 million - 1 billion) has been spent (Ministry of Health 2004). With 1 400 clinical trials conducted and 115,000 patients involved in the clinical research (86 people per test and 2,000 per company) Poland is still behind some EU countries. The main reasons for that situation are: low quality of research, problems with ethical opinions, problems with registration, patients resignation during research, low quality of work of medical personnel conducting CR, lack of high-qualified doctors, insufficient equipment in health centres and high cost of co-operation with health centres (Word Annex 12).

I.2.4. Main problems of healthcare sector in Poland

The healthcare policy, which depends on the political situation in Poland, is very unstable. Just to underline: from 1999 Poland has had 10 Ministers of Health. The longest presidency was one year, the shortest only 17 days. From 1 April 2003, when the first president of the National Health Fund was elected, there have been seven presidents.

Yet, one of the main reasons for the relatively worse situation of the Polish healthcare sector is the growing indebtedness of hospitals, which could be solved only by state aid and restructuring of public

autonomous health administration units (State Aid and Restructurisation of Public Autonomous Health Administration Units Act 2005). Currently, it is estimated that between 40 and 100 units have obligations exceeding their own budgets, whereas hospitals owed EUR 97.11 million (PLN 370 millions) as for 2005 to service providers (e.g. electricity and water supply) and to hospital workers EUR 65.61 million (PLN 250 millions). In 2003, indebtedness of hospitals amounted to EUR 1.24 billion (PLN 4.7 billion), whereas in 2005, the number was already EUR 1.6 billion (PLN 6.1 billion) and finally in 2006, it was reduced to EUR 1.1 billion (PLN 4.1 billion) (Rzeczpospolita of 19 September 2006).

In a survey conducted by the Ministry of Health (The Indebtedness of The Autonomous Public Health Administration Units, 2005) in 2005 only 45.3% of almost 1,734 surveyed units (790 units) were not in debt. The indebtedness of the autonomous public health administration units has not been a threat to the hospitals, because of the legal limitation to restrain the indebtedness of the public entities (Art. 831§4 of the Civil Code Procedure 1984). The latest judgment of the Polish Constitutional Court from 9 January 2007 (Judgement of the Polish Constitutional Court 2007), precluded this regulation as it was not compatible with the Polish Constitution (Articles 20 and 32.1. of Constitution: A social market economy based on the freedom of economic activity, private ownership, and solidarity, dialogue and cooperation between social partners, shall be the basis of the economic system of the Republic of Poland; All persons shall be equal before the law. All people shall have the right to equal treatment by public authorities). The Court held that there was no need to limit the temporal effect of this judgment. Therefore, the creditors (especially those, who had bought debts of the hospitals) started to request for the payment with the help of a bailiff. Some of the hospitals will have to receive financial aid from the state government. In February 2007, there were over 27 hospitals which existence was not assured for the year 2007, which without public financial support could go bankrupt (Gazeta Prawna of 24 January 2007).

Another issue is the unnecessary paper burden. Presently, the insured person must apply every month for the current stamp from their work place to prove that their insurance premiums are deducted from the personal income tax. In 2005, in Poland there were over 12.5 million employees. That means that each month millions of Poles, had to ask for such a proof. Consequently, it leads to a waste of employees` time in million of hours. Moreover, most of the clinical data is still on paper. As a result, the information is not comparable and exchangeable between providers, irregularities and potential fraud can only be detected with efforts and trade with the personal identification numbers as well as receipts of payments for faked identification is still growing.

Yet, another problem is the existing bottle necks in some of the hospitals because of the limited number of treatments within the single contract with the service provider (National Health Funds 2006). As a result patients have to choose the provider that still has shared limits available. For that reason there are situations, where good hospital cannot provide any services and patients have to wait for months for an examination or treatment.

The Polish ombudsman has sounded the alarm that patients' rights in the Polish healthcare sector are in danger. Due to the high number of doctors and nurses leaving Poland for better-paid jobs in other EU countries, service providers refuse to treat patients (Rzeczpospolita of 19 August 2006). According to the Supreme Medical Chamber (SMC) almost 25,000 practitioners work abroad (which makes around 20% of all practitioners in Poland). The main problem is, that over 5,000 have left after the EU enlargement. Still 25,000-30,000 practitioners are expected to leave the country in the nearest future. The most active emigration of medical staff is observed in the western and southern Polish regions, which paradoxically are relatively better situated in economic terms than their peer regions in the east side of the country (Word Annex 13). Taking into consideration the specialization, the situation appears more dramatically For example, in some regions even 50% haematologist have left the country. The main private healthcare providers have also problems in finding staff (Rzeczpospolita 04 January 2007). Two main reasons for that situation are the low salaries: e.g. a doctor 25 years old employed in a hospital (170 hours a months and additionally 80 hours duty) earns only EUR 682 (PLN

2600) which is almost six times less than in Italy or even 12 times less than in Great Britain (Supreme Medical Chamber 2006).

Another problem for both the Polish healthcare system and public administration is the almost unchangeable level of corruption. For the first time since 2000, when the Batory Fundation[17] started the project "Barometer on corruption" the healthcare sector became a life sphere, in which, in opinion of surveyed people, the corruption appears most often in Poland. Money is the most offered bribe (81%). Over 22% of respondents estimated the bribe on less than EUR 26.24 (PLN 100), whereas 20% on EUR 131.23 (PLN 500). More than 40% answered that is the natural way things have to be done, 33% stated, that one had them understand that a bribe was necessary. In 7% of cases, the bribe was demanded (Word Annex 14). Another research source states that there were several reasons for the high position of illegal gratifications in the Polish healthcare system (2006). In 29% of cases, a bribe was given as a way to achieve greater service reliability, 23.5% as the appreciation for performed surgery, 13.5% for a medical serviced provided earlier, 12% for arranging a bed in a hospital and 10% for references to specialists (Wojtasiński 2006).

The Health Consumer Powerhouse has, in 2006, for the fist time presented the Euro Health Consumer Index 2006 comparing all the EU Member States. The index measures how user-friendly the national healthcare system turns out around the Union. Poland received 17 points for the patients' right and information (maximum, 24 points were given to Netherlands). Poland with only 7 points has to improve the waiting list procedures. Poland with the total score of 409 was ranked on the 21 position. This means that Poland is considered, after the Czech Republic, Slovakia, Latvia, Ireland and Lithuania, one of the countries which needs considerable improvement in terms of the consumer-friendly healthcare system.

I.3.   The ownership and financing structure of healthcare system

The total level of expenditure on healthcare expressed as % of GDP amounted to 4.9% in 1990 and 6.5% in 2003 respectively. Proportion of public expenditures on health as % of total expenditures on health was estimated on the level of 91.7% in 1990 and dropped in next years to remain on the level of 69.9% in 2003 according to statistics issued in OECD Health Data 2005 in October 2005 (OECD Health Data 2005: Statistics and Indicators for 30 Countries).

Currently, the healthcare system in Poland has three main financial sources: the state budget, self-governments and the NHF (Word Annex 15).

The NHF finances the direct costs of health services to patients through contracts with service providers. The budget of the NHF the years 2003-2007 has almost doubled from EUR 5.85 billion (PLN 22.3 billion) in 2003 to EUR 10.89 billion (PLN 41.5 billion) in 2007 (Statistical Annex Table 23). The state government budgets (state, voivodships or communities) continued to finance public health services, the hospital costs of all health services, and specialist tertiary care services (AIDS) and very expensive drugs. Revenues from universal health insurance premiums are managed by the National Health Fund, forming the major public source for healthcare financing. To be granted a benefit, the beneficiary should present a) health insurance card or other document confirming the payment of health insurance contribution - in the case of person insured, b) a decision taken by the mayor (president) of community - in the case of beneficiary other than the person insured.

The public expenditures consist of budgetary means, territorial self-governmental units budgets and social service funds. The private spending covers not only households' budgets, which spend money on medical services and goods, but also private insurance companies, non-profit organizations as well as companies which purchase extra health insurance for employees.

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[17]   www.batory.org.pl/korupcja/barometr.htm

Currently, the patient's employee pays a health insurance. The insurance premiums (8.5%) are deducted from the personal income tax collected by the Polish Social Security Agency (ZUS). That is the reason why the eReform of the institution has as well an impact on the eHealth. That means, that from an average national income of EUR 625 (PLN 2 500) over EUR 47 (PLN 180) are spent on the Polish healthcare system by each insured person. The height of the insurance premiums has been continuously raised from 7.5% in 2000, 7.75% between 2001-2002, 8% in 2003, and 8.25% in 2004 finally up to 9% from the 1 January 2007. Until the year 2001, insurance premiums could be completely deducted from paid taxes. From the year 2001, only 7.75% of insurance premiums could be deducted. That means that households have to pay the additional 1.25% from their income. This change increased the financial share of private sector in the healthcare system. The extra funds (around EUR 1.05 billion (PLN 4 billion)) from the increased premium will be spent mainly on the increase of salaries on the public healthcare sector in 2007 (Szparkowska 2007).

For 2007, the Ministry of Health announced that public financial means (self-government expenditure not included) for healthcare will really increase by 11.6%. The state budget has increased the healthcare budget by 31.8% (from EUR 1.34 billion (PLN 5.11 billion) to EUR 1.77 billion (PLN 6.74 billion)) in real terms. The main reason for the significant increase is the Medical Rescue Act. According to the new law, the state budget will be financially responsible for the medical rescue from 2007 (until that time the National Health Fund).[18]

There is a correlation between the contribution rate and insurance income, regardless of the insurance risk. The ones insured have equal access to services, and healthcare is free irrespective of the risk. Non-standard services may require a co-payment; however, private medical and dental treatments are paid directly by the patient. Substantial informal gratuities paid to physicians and other healthcare professionals are illegal. Despite these improvements, the system experienced several problems: there was no central register of insured people, the system did not cover the entire population (still over 700,000 people are not insured: the homeless, the unregistered unemployed, the illegally employed)[19] and the state-run system faced economic problems and a constant deficit.

The current legal status of both The Act on Insurance Activities (The Act on Insurance Activity of 2003) and The Law on Healthcare Services Financed from Public Funds (The law on healthcare services financed from public funds 2004) does not provide legal basis for the establishment of private, competitive insurance companies. All existing forms of private insurances have a mainly supplementary role. Providers like Signa Stu, PZU and Hestia[21] offer medical services, which are standard services provided by the National Health Fund (access to physicians of all specialties, home visits, pregnancy care, diagnostic examination, allergy tests). They also offer services not covered by the state insurance (care for parents during trips of the main beneficiary, flu vaccinations). Patients do not have a choice between the National Health Fund and private health sector insurance for all of that. There is no private insurance available that would cover all services provided by the National Health Fund. Private insurance is rather for companies willing to provide their employees better service (paying additional health insurance attract workers) and for well-situated individuals, who do not want to wait for treatment. Nevertheless, it has to be reminded, that The Universal Health Insurance Act from 1997 (The Universal Health Insurance Act 1997) ensured in the art. 4a that within 3 years of the functioning of the new healthcare system the private healthcare sector would be able to compete with the public one. Due to grave apprehensions concerning the financial problems connected with the capital flow from the public to the private sector (especially of young, healthy and wealthy part of the population) the parliament decided to resign from that possibility.

Over half million Poles take regularly advantage of private healthcare. The income of private medical units in Poland in 2005 has raised by 30-40% in relation to 2004. The market value is estimated to be between EUR 157.5-183.7 million (PLN 600-700 million) (Cabaj 2006). There are several private

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[18] www.mz.gov.pl
[19] www.nfz.gov.pl
[21] www.cignastu.com.pl, www.hestia.pl, www.opiekamedyczna.pl

medical units in Poland offering healthcare services, three biggest of which should be mentioned (Word Annex 16).

The Medical Centre LIM Ltd. (the oldest private medical care company in Poland since 1991 provides service for 700 businesses and corporations (250,000 patients)). Medicover founded in Warsaw in 1995, had in 2005 over 130,000 clients. LUX MED, established in 1993, is one of the largest private medical corporations in Poland. All of these private medical units offer a range of examinations and tests, medical specialties, and procedures, having own medical emergency service and modern outpatient clinics, surgeries, and laboratories.

In total, the healthcare market is worth annually over EUR 18.37 billion (PLN 70 billion) and is divided into four groups:
   a) National Heath Fund EUR 9.44 billion (PLN 36 billion);
   b) Medicaments spending EUR 5.25 billion (PLN 20 billion) of which around EUR 2.62 billion (PLN 10 billion) refunded by the state budget sold in the pharmacies and bought by the hospitals;
   c) Bribes EUR 2.62 billion (PLN 10 billion);
   d) Spending for private medical sector EUR 1.05 billion (PLN 4 billion) (Ogólnopolski Związek Pracodawców Prawytnej Służby Zdrowia).

The share of the private financial means financing the Polish health system has steadily increased over the last 17 years from 10% to 38% (Statistical Annex Table 24). There are several reasons why the private sector has been growing. The growing cost of drugs on the one side and on the other, due to the poor quality of the public sector and the lack of money fore basic needs, the total amount of bribes in that sector has been increasing steadily. A very important group, which makes the private share for the healthcare sector increases are the private medical providers. Some major reasons for the prompt development of that market have to be mentioned. On one hand the limited amount of contracted medical services imposed by the National Health Fund. Each year the NHF signs contracts with service providers. Service providers cannot treat more patients than contracted. On the other hand, the waiting list for a life saving treatment is too long. That means that for some specialized or sometimes not even complicated treatment a patient has to queue for weeks or months. An important factor is also the quality of the private service providers, which is much higher than services provided in the public sector. In the public sector, a patient has to queue each time to get an appointment (in the private sector you may arrange your appointment by phone). The patient does not need to wait for a long time for treatment. Important is also that you do not need to have a proof from your employer that you are insured. The service providers have that information each month in the system.

Some negative opinion on the Polish private medical sector has also to be mentioned. On the one hand, it is the high competition on the market that reinforces lower prices for the monthly subscription, but the consequence of that is that more patients are treated by the unchanged amount of staff. There are even cases when patients have to wait for some treatments. Colleagues from the public sector mention cases in which a treated patient in a private clinic had to be treated again in a public unit, because of the bad quality. On the other hand, private units, opposite to the public ones, are not obliged to treat all patients (even if they wish to pay-the same cases where registered- but the treatment seems to be to difficult) (Sijka 2007).

To sum up, since 1990 the system of governance in Poland has gone through significant changes. The social and political transformation have resulted not only from the breakthrough of 1989, but also from a shift in the economic regime. On the one hand, as a result many new tasks, rights and obligations were transferred to particular local administration units. On the other hand, technological advancements in the new internal management and external communication tools enabled faster and more efficient public services. Initially the use of computers was introduced only by the most progressive authorities, today it is their obligation stipulated in the law.

At the beginning of 1997, Poland started to legislate for national health insurance. Poland's current structure of healthcare provision has both positive and negative characteristics. The positive is that healthcare is provided through publicly-owned integrated healthcare provision organizations (ZOZs) and private owned clinics. However, Polish ZOZ's have operated purely as bureaucratic management units with inadequate funding.

II. DESCRIPTION OF THE CURRENT ROLE, STATE AND DYNAMICS OF E-GOVERNMENT AND E-HEALTH SERVICES

II.1. Institutional structures, resources and funding eGovernment and eHealth developments

II.1.1. Organizational structure and co-ordination of eGovernment

The body responsible for development and monitoring of policy for the information society (mainly the eGovernment domain) is the Ministry of Interior Affairs and Administration (Ministerstwo Spraw Wewnętrznych i Administracji). Other information society development areas are handled by each of the Polish ministry offices within its area of competence and responsibility necessary for the execution of their policy.

From 2006, the Interdepartmental Body for Informatisation has been responsible for the co-ordination and monitoring of the activity of the whole central administration concerning the ICT development.[18] The main task of the body is to prepare and to advise on legislative acts; to advise on statements or other documents before their acceptance by the Prime Minister or the Council of Ministers especially in matters of: development of the information society, ICT infrastructure and the usage of ICT in building economy.

Another important body is The Informatisation Council, which from 2005 has been an advisory body of the Minister. The Council advises on informatisation strategies, plans and action plans. It may propose technical standards of teleinformatic systems, minimum standards on public registers and it may translate documents of standardisation into Polish.

The Office of Electronic Communications

The Office of Electronic Communications (OEC) was established in 2005 in place of the central-level government administration body – the Office of Telecommunications and Post Regulation. The President of the OEC is a regulatory authority regulating the telecommunications and postal markets. It is the institution responsible for the liberalisation of the telecom and the broadband market (Office of Electronic Communications, 2006).

II.1.2 Major institutions providing eGovernment services on national, regional and local levels

The following offices provide the eGovernment services on national level:

a) Ministry of Interior Affairs and Administration (ePUAP - electronic Platform of Public Administration Services,[19] CEPIK - Central Register of Vehicles and Drivers, PESEL - Polish Universal Electronic Population Register, teleinformatics infrastructure, biometric passports coordination of the process of informatisation in Poland);

b) Ministry of Finance, (eDeclarations, eTaxes, SIMIK (Information System for Monitoring and Financial Control of Structural Funds and Cohesion), CELINA - Customs Declarations Processing System;

c) Ministry of Justice (informatisation of courts and real-estate registers);

d) Ministry of Labour and Social Policy (Public Employment Services Portal, National Employment Monitoring System, EURES Job Offers Exchange Systems, SYRIUSZ - FOB (Beneficiary Registration System);

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[18] The Ordinance of the Council of Ministers of 12 of September 2006
[19] elektroniczna Platforma Usług Administracji Publicznej

e) Central Office of Geodesy and Cartography (MATRA II - Design of Cadastral Database Model in Poland, ERDF/GEOBAZA - dissemination of geographical information and metadata, MATRA III "Support for the development of central cadastral database in the Mazowieckie Province in Poland;

f) Ministry of Health (via Centre for Health Information Systems) - (design and monitoring of information systems in healthcare preparation for implementation of teleinformatics systems in healthcare, elaboration of standards for exchange of data, medical informatics);

g) Ministry of Science and Higher Education (PIONIER - teleinformatic infrastructure for scientific research, supervision over the Information Processing Centre (OPI) and Scientific and Academic IT Network (NASK));

h) Ministry of National Education (Internet Centres for Multimedia Information in School and Pedagogical Libraries, Computer School Labs);

i) Ministry of Transport, creation and implementation of the telecommunication policy and Office of Electronic Communications - promoting competition in the provision of telecommunications networks, development of internal market, implementation of policies aimed at the promotion of cultural and linguistic diversity, as well as media pluralism;

j) Office of Public Procurement - procurement, eAuction.

Poland still does not have a central eGovernmental portal that would enable personalised case handling, electronic payment and centralised public procurement. However, one should mention that a countrywide project "Gateway to Poland" ("Wrota Polski") has already started in the form of regional pilot projects.[20] namely "Gateway to Małopolska" ("Wrota Małopolski"),[21] "Gateway to Podlasie" ("Wrota Podlasia"),[22] "Gateway to Opole" ("Wrota Opolszczyzny")[23] or "Gateway to Pokarpacie" ("Wrota Podkarpackie").[24] The latest "Gateway to Pomorze" ("Wrota Pomorze") offering over 25 administrative online services was opened on the 4 October 2006 - www.wrotapomorza.pl. The project "Gateway to Poland" is planned to grow into a central ePUAP platform and take 5 years to implement the most basic functionality (Ministry of Internal Affairs and Administration, 2006). Central funding supported all of the projects. There is another regional eGovernment Gateway in Warmia and Mazury Region. The project will be supported by EUR 5.77 million (22 million PLN) from European Fund for Regional Development (ERDF). The Marshal Office in cooperation with 100 self-governments of the region will conduct the project (Ministry of Internal Affairs and Administration, 2006).

The Regional eAdministration System provides access to the virtual document transfer system along with the electronic signature infrastructure, which can be integrated, with local document circulation systems. The Digital Office, being a part of eGovernment Gateway, with its virtual document transfer system allows all public administration units to join it on an equal footing, regardless of their wealth or size, or whether they are interested in the implementation of developed applications of the document transfer system. It, thereby, offers the opportunity of handling matters online, a possibility that meets the interests of both citizens and businessmen.

The second platform - the Opolszczyzna Gateway[25] - is at the lower level of development in comparison to the Małopolska Gateway. It presently offers 24 services, yet without the ability to use an electronic signature. The procedures listed in the catalogue can only be initiated online (thanks to which the number of visits at the office is limited), but their finalisation via Internet is not possible. To facilitate the search the services are both listed alphabetically and divided in two groups: for citizens and for businesses and institutions, with further thematic division in the groups. Each service is described in detail and the necessary form is attached. The eGovernment portal was implemented thanks to the cooperation agreement of the local governments and other public administration bodies

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[20] The names of the Gateways are giving according to the names of the regions (voivodships).
[21] www.wrotamalopolski.pl
[22] www.wrotapodlasia.pl/pl
[23] www.wrotaopolszczyzny.pl/pl
[24] www.wrota.podkarpackie.pl/pl/
[25] www.wrotaopolszczyzny.pl

in the region (a total of 115 bodies at various levels). The portal offers an opportunity to transfer the solution to other regions (CEC, 2006b).

Furthermore, the standard of online specification of procedures, the technical documentation prepared, and the possibility of integrating the system with local document transfer systems constitute a model for other Polish regional eAdministration systems to follow.

The Privacy Protection in Data Communication Systems

The bureau of the Inspector General for the Protection of Personal Data (Generalny Inspektor Ochrony Danych Osobowych-GIODO) is the supervisory authority for the protection of personal data established in 1998 (The Act on the Protection of Personal Data of 29 August 1997). The Bureau has created a web server called the Privacy Protection in Data Communication Systems. It deals with the main issues of personal data security in case it refers to final users in the world of eTechniques of information systems. It aims at providing the user with information as regards threats to privacy, which are posed by modern data communication systems as well as instruction and advice referring to the possibility of protection against such threats. The information shall prepare the future wide spread access of more advance public network.[26] Moreover, the bureau has introduced the computer system called "Electronic platform of communication with the Inspector General for the Protection of Personal Data" (eGIODO) for EUR 420,000 (PLN 1.6 million). The electronic communication platform enables to search for all public registers by GIODO (over 68,749 public registers). It is also possible to submit and to update public registers via Internet. The project was realized with financial support of the measure 1.5 of The Sectoral Operational Programme "Improvement of the Competitiveness of Enterprises, years 2004-2006"(Rzeczpospolita, 8 July 2006).

The National Court Register

The National Court Register was established on the 1 January 2001.[27] The register performs two main functions:

a) to inform (access to information on legal status, main details of financial situation of entities in the form of a central database) or its legal representation;

b) to legalise (fulfilled before a given entity is allowed to perform legal acts in future (the registration is necessary to have a legal personality for some entities).

The National Court Register is a database composed of three separate registers:

- register of entrepreneurs;
- register of associations, other types of voluntary and professional organizations, foundations and public institutions of social service;
- bankruptcy register (regarding insolvent debtors).[28]

Everyone may obtain basic information from the National Court Register about all 150,569 registered entities via the webpage of the Ministry of Justice (Gazeta prawna, 18 December 2006). From the 1 January 2007, entities using the electronic signature, may submit to and receive information from the courts electronically. There are two search options by the registration number and name.

Other actors in eGovernment service development

There are non-profit organizations offering training, information as well as building they own tolls and solutions on eGovernment and eHealth, e.g.:

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[26] www.giodo.gov.pl

[27] The Act on the National Court Register of 20 August 1997 (Ustawa z dnia 20 sierpnia 1997 r. o Krajowym Rejestrze Sądowym), Journal of Law No 121, item 769

[28] ww.pozytek.gov.pl/

a) **The Polish Information Processing Society** (PTI) objectives are: organising courses, conferences, congresses, lectures, exhibitions, domestic and foreign study trips, technology shows, competitions, also by publishing and popularising the areas of knowledge covered by the Society s official range of activities under the relevant laws. The PTI has also achievements in the introduction of computer sciences to schools, in the reviewing of customs tariffs on IT products, in the determination of the strategies for the further development of computer sciences and information technologies in Poland, as well as in the standardisation of legislation.[29]

b) **The Cities on the Internet Association** is a non-governmental organization established in 1997 by eGovernment experts working for the benefit of the Polish public administration. Its mission is to support the public authorities - central, regional and local - in defining, planning and implementing projects for eDevelopment dedicated to building the society based on knowledge.

c) **Rural Development Foundation** is a private, non-government, non-profit organisation delivering services and products to rural communities of Poland to help build sustainable, healthy local economies with business and social opportunities for all. The partnership with the Polish-American Freedom Foundation and Cisco Systems Poland/Cisco Foundation has developed an innovative information technology pilot project with the goal to popularise potential and specific applications of IT amongst rural and small town communities, with the emphasis on local governments, entrepreneurs, NGOs and youth;

d) **The Polish Competence Centre for eGovernment and eLearning** (PCC) -The competence centre will acquire, check, test and show modern IT and software solutions for the public sector and education realised with different technologies by different manufacturers and service providers.

II.1.3. Organizational structure of eHealth services

Until 2000, the implementation of eHealth projects stayed within the responsibility of the Ministry of Health. In 2000, as a result of the transformation of the Centre for Organization and Economics of Healthcare into the Centre of Information Systems of Healthcare (Centrum Systemów Informacji i Ochrony Zdrowia - CSIOZ) the new body responsible for development of eHealth (mainly health information systems) was established. The CSIOZis perceived to be a national competence centre for eHealth.

According to the ordinance of the Minister of Health from of 8 April 2004 based on principles of performance, the Centre of Information Systems of Healthcare, was made responsible for designing and monitoring information systems in healthcare, the preparation for implementation of teleinformatics systems in healthcare, the elaboration of standards for exchange of data, and medical informatics. The Centre conducts statistical surveys on the performance of the healthcare system in Poland. The CSIOZ conducts statistical analyses of the level and advancement of technological equipment in hospitals. However, it does not conduct any survey on data on computer and Internet availability in healthcare or available eHealth services.[30] The Minister of Health nominates the director of the CSIOZ, who is responsible for the work of the body.

On the national level

The Polish government does not offer one official website comprising all health information, but according to the draft eHealth Strategy for Poland 2004-2006 by the Ministry of Health, an official health portal was planned but was not opened in the second half of 2005. The portal is to be provided by the Ministry of Health in cooperation with the CSIOZ.

On the website of the Ministry of Health (Ministerstwo Zdrowia) www.mz.gov.pl you may find basic information about the ministry, polish law, download forms which can be used as well on the local as

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[29] www.pti.org.pl
[30] www.csioz.gov.pl

on the central level. Patient can find patient's rights, a dictionary and answers for the most frequent asked questions. There is also information about immunisations and transplants. The page is also available in English, but only with limited content. The Information Systems for Healthcare is available on the www.csioz.gov.pl but only in Polish. On the website one can find a register of health-care institutions and medical rescue institutions www.rejestrzoz.gov.pl. KS-BLOZ (Baza Leków i Środków Ochrony Zdrowia - Register for Drugs and Healthcare Products) collects daily date from over 6 500 pharmacies, 1 500 service providers and 140 warehouses. Currently, the database consists of over 75 000 drugs and healthcare products. It allows to exchange date between the pharmacies and warehouse (an invoice can be issued that way).[31]

The National Health Found www.nfz.gov.pl page offers a register with information about healthcare institutions, the services provided and contracted and a waiting line for specialist and surgeries list. Furthermore the Found provides basic information about the polish health system in EU languages and important information about healthcare provisions, healthcare systems and procedures for treatment and money refund rules in European Union countries.

On the website of the Central Institute for Labour Protection - National Research Institute (also available in English) you may find all information related with problems of improving working conditions in accordance with human psychophysical abilities. You may order teaching materials, download movies, go through some online courses on supporting safety and health management.[32]

Private medical units in Poland

All main three private medical units in Poland have a webpage. The webpage of Medicover is also provided in English (www.medicover.com). The patient may use the "Health vademecum", a service with health information, comprehensive information on various disorders and diseases, as well as on the methods of their prevention and treatment. The company has also recently implemented an application called Medicover On-line. The portal enables to: book and cancel appointment in a Medicover Centre, view the list of previous and planned appointments, view doctor's schedules and allows to update patients data. During the first months offer 5,200 members have signed in for the service.

The Medical Centre LIM Ltd. enables patients to book a visit online (by sending a form). All information (doctors, consultations clinics, price list, offer and service) is provided in English and German. You may also download Newsletter on medical subjects. There are some issues in English, but the newest ones are available only in Polish.[33]

The website of LUX MED is available in English. You may download a newsletter and articles about health issues. Moreover they have online services like a laboratory calculator (informs about the traditional and international measures unit to compare with the laboratory examination) and information how to prepare for diagnostic test. You may book your visit by phone. The day before the visit you will receive an sms reminder. Recently, 'book a visit' online was made possible.[34]

On-line practitioners and clinics

Hardly any service offers online interaction, with general practitioners in Poland. There are very few websites offered by family doctors or general practitioners in Poland. Therefore, patients (each family doctor has around 6000 patients) can not use any eHealth services like receiving information on services provided, payments for not refunded service, making an appointment, checking the arrival of test results etc.

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[31] www.infobi.com.pl/ks_bloz.htm
[32] www.ciop.waw.pl
[33] www.cmlim.pl
[34] www.luxmed.pl

Only few specialists have their own websites. www.lekarz.ii.pl and www.ginekolog.zlot.pl are sparse examples of specialist's websites. Only basic information such as contact details, opening hours, address and general information about services can be found.

Clinics do not offer the opportunity of emailing a doctor. Online consultation is not common in public clinics, even in private clinics it is hard to find any online services. Only in a few cases it is possible to make an appointment, of similar easy tasks online www.lekarz.com/boguslawski. The most sophisticated services in Poland can be found at the www.telezdrowie.pl, where patients can test their hearing, sight and speech online.[35]

There has not been any survey on the amount of online clinics and hospitals units' availability. Those public clinics and hospitals that do have websites provide only basic information about them (address, administrative structure, events, tasks, history of the unit).[36] On some websites information services for users are available. Starting with patients rights, information useful for preparing for surgeries or even the possibility to download units newsletter (www.swk.med.pl). The first Polish Internet Clinic www.przychodnia.pl is worth mentioning, it not only offers general health information, but also the possibility to ask a doctor (but this service will be payable), take part in online training or a test. It also offers an Internet service for general practitioners. The public clinic www.szpitalkarowa.pl (information connected with pregnancy and children).

Phone consultations with one's own general practitioner, family doctor and primary local healthcare clinic are also very rare in Poland.

Poland has many commercial eHealth portals. One of the biggest portals is Onet www.zdrowie.onet.pl. At this site patients can find information about intimate life, psychology, healthy lifestyles and so on. Other popular commercial portals for doctors and patients are www.esculap.pl, www.nazdrowie.pl, www.zdrowie.com.pl, www.zdrowie.med.pl, www.epacjent.pl and drugs and www.zdrowo.pl. All of these portals provide information about health, healthy lifestyle and other useful information. At www.zdrowo.pl patients can find information on doctors, specialists, pharmacies and hospitals in 3 voivodships. On the www.zdrowie.med.pl you have also a forum where you may chat and a health lexicon (anatomy and of e physiology, the alphabetical register of sickness-symptom and a register of diagnostic research).[37]

Users and patients may find a list of health-care institutions, specialists and pharmacies at regional portals: www.zdrowemiasto.pl and www.zdrowie.zgora.pl or Małopolska websites. Moreover the portal www.nazdrowie.pl provides a database on health-care institutions in 3 regions.

For those seeking general health information, almost all main portals like Interia www.samozdrowie.pl or o2.pl www.kafeteria.pl/ziu provide information about healthy living. One of the main websites www.zdrowie.onet.pl was created by the largest Polish portal Onet.pl. At this website patients can find specialist help on specific issues related to healthy living or health. Furthermore there are portals on special issues such as intimate life or life after 40 www.po40.pl. The Portal www.nazdrowie.pl also provides information about health, diet, fitness and beauty.

The www.instytutblendamed.pl[38] website allows you to put the day on which you purchased your toothbrush and thus you would receive an e-mail reminding you when to buy a new one (only 3 months option) or about your dentist visit (only 6 months option). Moreover, teachers may download teaching materials.

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[35]   www.euser-eu.org
[36]   Some of the expamples: www.10wsk.mil.pl, www.onkologia.krakow.pl, www.ostrowwlkp.pl,
       www.dzieciatkajezus.pl, www.wssk.wroc.pl, www.iczmp.edu.pl (also in English)
[37]   www.zdrowie.med.pl
[38]   it is an Institute promoting toothpaste

Online pharmacy

The first online pharmacy was established in May 2004.[39] The reason for that was the access to the European Union due to the European Court of Justice judgment from the 11 December 2003 C-322/01[40] allowing for the sale of medical products by mail. The Małopolska Voivodship Pharmaceutical Inspectorate interdicted the functioning of the on-line pharmacy DomZdrowie.pl. The Main Pharmaceutical Inspectorate in Warsaw reversed the decision.[41]

Currently, there are 12 450 stationary pharmacies and only 70 online pharmacies. The prices in the online pharmacies are between 10 and 15% less than in a stationary pharmacy. The value of the whole pharmaceutical market was correspondingly EUR 4.96 billion (PLN 18.9 billion) and EUR 26.24 million (PLN 100 million) in 2005. (Rzeczpospolita of 16 August 2006). The annually average turnover of a pharmacy is adequately EUR 0.52 million (PLN 2 million) and EUR 0.42 million (PLN 1.6 million) (Rzeczpospolita of 19 April) It is still not possible to order prescribed medicine. The market value of medicine without prescription amounts to EUR 1.31 billion (PLN 5 billion) (Życie Warszawy of 19 April 2006). It is forecasted, that the online pharmacy will have a share of 5% of the market within five years time.

Each month there are two-three new Internet pharmacies being opened (Rzeczpospolita of 19 April 2006). An extreme rise in sales within that particular area could be observed. The number of orders on the www.apteka4u.pl website has been growing by approximately 30% a month since the pharmacy's creation in October 2005. According to a survey made by Apteka4u the number of transactions can be calculated as 1-2% of the number of entries to the www.apteka4u.pl website. At the beginning of the business activity Apteka4U had around 100 entries a day, which translated into 1-2 orders. At present, however, the average number of entries is about 2 500, which gives around 750 transactions a month. By way of comparison, the first and largest Internet pharmacy in Poland, DomZdrowia reached about 2,000 transactions a month in July and August 2005 and this figure increased further in October. DomZdrowia envisages continued growth of 10-20% a month. Based on the date from the Apteka 4U, women are the most frequent customers (cosmetics and contraceptive coils). The average order amounted to around EUR 26 (PLN 100).[42]

The main online pharmacy and the most popular is the Dom Zdrowia (www.domzdrowia.pl). At this website patients can find a variety of medicines (i.e. for heart diseases, eyes, colds, contraception, homeopathic remedies, cosmetics and so on). Customers can pay online with credit cards. The pharmacy also provides a free telephone number for its customers and a sms service. The client receives an sms with information concerning the date when the delivery left the pharmacy and the delivery number. That number enables him to have an online view of the stage of the delivery. The pharmacy also offers prescribed drugs. Here are some big on-line pharmacies in Poland: www.aptecus.pl, www.apteka-centrum.pl, www.apteka4u.pl, www.aptekarodzinna.pl, www.aptekazdrowia.pl, www.e-lek.pl, www.i-apteka.pl, www.vena-vita.pl and www.vitanea.pl. Polish on-line pharmacies have also clients from other European countries. You can order products from countries like: Austria, Denmark, Germany, Finland, France, Great Britain, Ireland, Italy, Netherlands, Portugal, Spain, Sweden (www.aptecus.com). On the www.apteka-centrum.pl filling the registration form you may also choose: Belgium, Bulgaria, Canada, Croatia, Czech Republic, Estonia, Greece, Hungary, Latvia, Liechtenstein, Lithuania, Monaco, Norway, Romania, Russian Federation, Slovakia, Slovenia, Switzerland, Turkey, Ukraine and the United States of America. Aptekarodzinna.pl mentions even Belarus and Israel. Some give information about shipping prices to EU countries (www.aptekazdrowia.pl) and all the world (www.aptekarodzinna.pl). There is also one online pharmacy which provides websites in English and German (www.aptekaotc.pl). The prices are given in PLN, EUR and USD (www.aptekaotc.pl and www.i-apteka.pl).

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[39] www.DomZdrowia.pl.
[40] Judgement C-322/01, (OJ) OJ C 47, 21.02.2004, p. 5.
[41] www.gif.gov.pl.
[42] Pharma Poland News (www.apteka4u.pl)

II.1.4. The financing structure of eGovernment and eHealth and ICT

The State budget

The overall state expenditure on ICT has increased in the years 2002-2005 from EUR 300 million (PLN 1.26 billion) to EUR 530 million (PLN 2.05 billion). The government foresaw EUR 1.75 billion (PLN 6.67 billion) for IT spending in the years 2004-2008 (Statistical Annex Table 11).[43] The expenditure on IT investment in the public sector and administration increased by 10% up to EUR 0.62 billion (PLN 2.37 billion) in 2004. However, the share of IT investment of each Ministry´s budget still remained under 1% only in exceptionally cases reach few percent. The share of the public administration expenditure in the overall profit of IT market was 18% in 2004 (Kraska 2005).

The national budget does not specify eGovernment spending. There is, however, from 2002 a part of the budget called "ICT Development". Each of the Ministries has its own budget for ICT development and related issued. Consequently, there is no official data specifying the overall budget for the whole country for eGovernment. It has to be underlined, however, that the main components of the development of the ICT budget includes design work on the eGovernment system ePUAP, the public administration portal - gov.pl and financial support in the form of donations for local eGovernment systems developed in Małopolska, Podlasie, Opole and Pomerania Region. Furthermore, each institution has its own budget for eGovernment development. There is no data on the total budget for eHealth and eGovernment on the national, regional and local level.

In case of eHealth, the budget of the Ministry of Health does not specify the budget related to eHealth but to ICT in general. For the 2006 budget of the National Health Fund, only EUR 9.84 million (PLN 37.5 million) were reserved.

The Polish Ministry of Science and Information conducted two surveys, on public administration information infrastructure (The Level of Computerisation of The Public Offices in Poland, 2004) and online public services (The Development of eGovernment in Poland, 2004.) in 2004. The surveys covered some 2,600 offices and were the web-based surveys on electronic public services. According to the output of the surveys, almost 75% of the public administration offices at all administrative levels spend 1% or less of their budget on ICT.

The second edition of the surveys (The Level of Computerisation of The Public Offices in Poland, 2005) covering similar number of offices showed that public administration spent less than in 2004. Moreover 50.9% of the overall number had hardly committed any funds for ICT (in 2004% the rate was 18.9%). Similarly, to the first edition the main hindrance for development of eGovernment referred to the limited funding opportunities (the measure of importance was 7.9 in 10 degree scales). It should be pointed out that only half of the offices have a unit devoted to ICT matters only. Unfortunately, there are no reports on budgetary savings deriving from the implementation of eGovernment within central administration.

The government spending for ICT is one of the lowest within EU25 in term of % to GDP. The international comparison of public administration ICT expenditure per capita in EU25 with public administration ICT expenditure per capita (vertical axis) is less than 0.2% of GDP (Word Annex 17).

The EU funds

There are several possibilities to finance the development of the information society in Poland with financial support from the European Structural Funds financed by the European Regional Development Fund: on the one hand it is the Sectoral Operational Programme - "Improvement of the

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[43] and covers 215 projects. Ministry of Interior Affairs and Administration takes the bulk of this money EUR 1 353 million (PLN 5 156 million), followed by Ministry of Finance and Ministry of Justice EUR 169.55 million (PLN 646 million) and EUR 106.82 million (PLN 406.9 million) respectively (Annex 27).

Competitiveness of Enterprises" (SPO WKP) within the measure 1.5 "Development of System for Access to Public Information and Electronic Public Services for Entrepreneurs", on the other hand it is the Integrated Regional Operational Programme (ZPORR) within the measure 1.5.

The main beneficiary of the measure 1.5 SPO WKP is public administration. In the years 2004-2006, EUR 115 million from the European Regional Development Fund were assigned to the programme. With only two application rounds for the measure in the years 2004 and 2005 the money available was contracted. By September 2005, around EUR 99.73 million (PLN 380 million) was accepted for 92 projects (Ministry of Internal Affairs and Administration, 2006).

For the years 2004-2006, there were over EUR 116.2 million (PLN 442.73 million) available from the measure 1.5 ZPORR. eligible for financial support: public administrations on the local, regional and national level, and public utility institutions and the academia. By the 31 December 2006, over 101% of the allocated money has been contracted and 19.58% paid out.[44]

In the future, financial perspective 2007-2013, within National Cohesion Strategy for the first time there will be 16 Regional Operational Programmes (ROPs). The programmes will be managed by self-governments of consecutive voivodships. There is 26.8% of all the allocation for 2007-2013 attributed to the ROPs. The main goal of RPOs is to strengthen the competitiveness of the regions, and to promote sustainable development through the creation of conditions for investment increases on the regional and local level. The actions taken within each RPO stay in cohesion with 5 main operational programmes with priority on: information society, within specific measures for the development of Internet access in the rural areas and eServices (eGovernment and eHealth). The amount which will be allocated for projects on an information society is EUR 1.23 billion (PLN 4.7 billion).

The Norwegian Financial Mechanism

The Norwegian Financial Mechanism is aimed at the ten new EU member states. In total, the financial mechanisms will make available EUR 1.17 billion over the five-year period 2004-2009, supporting projects in a wide range of priority sectors such as protection of the environment, conservation of the European cultural heritage, health and childcare and development of human resources. Poland has been awarded, the total of EUR 558.63 million for the years 2004-2009. The health share amounts to 7.9% of overall allocation, including eHealth (Ministry of Internal Affairs and Administration, 2006) (Statistical Annex Table 27). The Norwegian Financial Mechanism will determine the development of eHealth in Poland mainly with projects related to therapeutic telemedic systems and medical Internet-based education and data collection systems and projects on the improvement of access to and quality of healthcare will (Ministry of Economy and Labour, 2005).

II.1.5. Public and private institutions involved in provision of eGovernment and eHealth services

The involvement of the private sector in development of eGovernment and eHealth has been limited so far. The latter was partly due to the lack of regulatory framework for PPP.

The Act of 17 June 2005 on Public-Private Partnership entered into force in October 2005. Therefore, the overall contribution of the private sector in the development of eGovernment and eHealth projects and services has been up to then very limited. The Act provides the regulatory framework for participation of private institutions in public investments, by regulating the principles and procedure of cooperation of a public entity and a private partner within public-private partnership (PPP).

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[44] www.zporr.gov.pl

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

II.2.1. Current eGovernment strategies and policies

The first notion toward the development of eGovernment, as a part of a wider information society strategy, is included in ***The Resolution on Development of Fundamentals for Information Society in Poland***. The act obliged the government to draft first strategy on the information society, which was adopted on 28 November 2000. The following aims relevant to eGovernment were established:

a) creation of transparent and user friendly structures of public administration with usage of teleinformatics tools;

b) improvement of administrative activities by wide adoption of teleinformatics;

c) creation of conditions for sustainable regional development and its monitoring.

The Action Plan - ***ePoland - the Action Plan for Development of Information Society in the Years 2001-2006*** – adopted on 11 September 2001 sets the following priorities for the development of eGovernment in Poland:

a) creation of transparent and user friendly communication with public administration;

b) ensuring each citizen access to public information, with appropriate level of security;

c) conduct of public administration by replacing data flow on paper by its electronic version;

d) ensuring technical interoperability of public information systems;

e) introduction of eProcurement.

National policies for eGovernment are embedded in *The ePoland Action Plan* adopted by the Council of Ministers in January 2004. The ePoland plan is being managed by the Ministry of Interior and Administration (IDABC, 2006).

One of the objectives of the document is: stimulation of the better utilization of information technologies. Strategic goals contribute to knowledge-based economy development and improvement in citizens' quality of life with an efficient implementation of information technology. Main objectives of the strategy are to:

a) provide affordable, fast and secure Internet access to all citizens and businesses develop useful on-line content and services achieve widespread ICT literacy;

b) develop valuable content and services accessible via the Internet;

c) increase the efficiency of public administration.

This will be accomplished by relocating public services, including public procurement, to an electronic platform. Within the strategy there are 14 actions related to the development of eGovernment in Poland. The electronic platform for electronic public services (ePUAP) shall be the tool for priority public services.

The Strategy on the Development of Information Society - ePoland for the Years 2004-2006 was the only strategic document to deliver the action plan for its implementation (*The eGovernment Action Plan 2005-2006*). The action plan was coherent with the strategy and well elaborated but lack of additional funding caused its limited implementation.

The ePoland Strategy for the Years 2004-2006 provides for the development of the "Gateway to Poland", updated with a concept for ePUAP, an integrated platform of public administration services available to a knowledge-based society, as a priority action in the aspect of eGovernment development. The foregoing three areas specify the priorities for the development of information society in Poland, including the development of the 'Gateway to Poland', i.e. an integrated platform for eGovernment services for the Information Society, and, what follows, ***The eGovernment Action***

Plan for 2005-2006 . The plan is being supervised by the Ministry of Interior and Administration (eUser, 2006).

The ePoland Strategy for the Years 2004-2006 is the first strategy, which is being monitored. The reports from the evaluation are being adopted by the Council of Ministers, the information provided rather reveal what has been achieved leaving no information concerning projects which were not implemented.

The ePoland strategy along with a supplementary ***The National Strategy of Development of Broadband Access to Internet*** (Narodowa Strategia Rozwoju Dostępu Szerokopasmowego do Internetu Siećpospolita" na lata 2004-2006) from December 2003 has been adapted to priorities of the European Commission defined in the Lisbon Strategy in order to boost the broadband development in Poland.

The Action Plan proposes actions with regards to interoperability and multi-platform approach (platform independence), accessibility (suitability for persons with disabilities, such as the "book for deaf people" project), and security. The draft action plan lacks focus on topics like utility, visibility/find ability, flexibility, usability and customisation/personalisation. Actually, some of the projects proposed in the draft action plan do focus on user orientation, but the plan itself does not mention or focus on user orientation. Furthermore, the strategy contains some projects for standardisation (platform independence) from legal and technological side. The strategy also has actions focused on improvement of content quality of services already provided online (eUser, 2006).

The eGovernment Action Plan was approved in October 2004, the Ministry of Interior and Administration has not conducted monitoring and evaluation of the action plan so far, no information is available on the level of implementation of the planned projects. *The eGovernment Action Plan* pictures the number of projects declared by the regional authorities for the implementation. *The eGovernment Action Plan for the years 2005-2006* declares 35 detailed projects associated with electronic delivery of various public services that ought to be implemented by 8 ministries and 5 central offices. In 14 cases the deadline for the final implementation was 2005, in the case of all others it was 2006 (Skulimowski 2005). *The eGovernment Action Plan for 2005-2006* derives directly from the provisions of the Strategy on the development of information society - ePoland for the years 2004-2006, which goal was to create a competitive knowledge-driven economy and to improve the quality of people's lives through effective computerisation. The main aim of *The eGovernment Action Plan for 2005-2006* was to encourage debate on the development of eGovernment in Poland in view of European Union membership and new budget assumptions for 2007-2013. In order to make eGovernment more efficient in Poland the Plan points out the following conditions that should be met in the future to ensure faster and sustainable development of eGovernment:

a) ensures consolidation and cooperation between ministries and other public administration institutions responsible for the development of eGovernement in Poland;

b) develop standards and recommendations for public administration systems (especially in view of Poland's membership in the European Union);

c) strengthen the management and coordination of information systems;

d) seek cooperation between central, regional and local institutions of public administration in order to create synergies, facilitate information flow, avoid repeating mistakes and unequal development of eGovernment;

e) use structural funds efficiently in order to ensure the development of eGovernment;

f) integrate the work of the public and private sectors as well as the academia in order to create a national programme for research and development of the Information Society.

The Action Plan is not supported by financial schemes for its implementation and constitutes the specification of the projects declared for conduct by national and regional authorities. The monitoring

of the Plan has not been conducted. The execution of a Plan stays now within the Ministry of Interior and Administration.

The priorities defined in **The National Research Programme** issued in 2005 include, among others, information technologies: development of teleinformatic infrastructure, methods and tools for development of software supporting progress of information society, intelligent systems of diagnosis and therapy as well as systems of medical information exchange through Internet and mobile platforms (Ministry of Science and Higher Education, 2005).

An another strategic document which was adopted by the Council of Ministers on the 1 September 2006 - **The National Computerisation Plan** (Plan Informatyzacji Państwa-NCP) is an instrument used to plan and coordinate computerisation activities of public bodies. The NCP for 2006 sets two priorities of computerization: streamlining public expenditure for IT projects within public administration and creation of modern and citizen-friendly state. It should be mentioned that, on the contrary to previous strategic documents, the NCP is being established by means of regulation and is presumed to have stronger implementation effect than former strategies. Moreover, the NCP for 2006 presents the directions of development of information society in the following years and presents the timeframe for the implementation of main projects i.e ePUAP - electronic platform for public administration services, Teleinformatic Network of Public Administration (Sieć Teleinformatyczna Administracji Publicznej-STAP), eDeclarations - eTaxes for transactions, PESEL-2 - reengineering of national registries, CEPIK, ePortal - access to national judiciary register.

On 4 September 2006, the Regional Parliament (Sejmik) of the Mazowieckie Voivodship (region) became the first in Poland to adopt a regional strategy for the development of the information society – the Strategy for Regional eDevelopment of the Mazovia Region 2007-2013. This is also the first strategy in Poland to comply with the European Regional Information Society Association (ERIS@) guidelines.

II.2.2. Current eHealth strategies and policies

The roadmap strategies within the eHealth area usually the chapter of wider documents have focused on the development of an information society in Poland. The first notion of eHealth was reported in *ePoland Strategy Poland for the Years 2001-2006*.

The strategy outlined the following priorities for eHealth: implementation of standards for gathering and data exchange in health centres, setting up central electronic registry of health centres (including eServices provision); setting up the registry of the insured; introduction of electronic card for health insurance; elaboration and implementation of electronic system supporting reporting; issuing of legal framework for clearing of health benefits; introduction of telemedicine action plan; implementation of pilot eLearning training scheme for health sector employees. The timeline for implementation of above mentioned was in many cases not set up, which resulted in negligence in execution of most of the actions.

The ePoland Strategy for the Years 2004-2006 as one of the actions set: support the use of electronic communication to increase the effectiveness of health services by better utilization of distributed resources and equalizing the quality of services in different areas of Poland. The following activities were set for implementation: assessment of legal state in the area of electronic transfer of patients' data and use of the electronic communication to provide medical services; development of recommendations for hospitals and health centres on the electronic transfer of patients' data; announcement of competition for the best use of the electronic communication for telemedicine; issuing assumptions for projects of best practices implementation, preparation of the strategy for the development of telemedicine in Poland for 2004-2006.

The eHealth Strategy for Poland for the Years 2004-2006 from September 2004 the year was an elaboration of main directions for the information society development in the health protection system

(CISH, 2006). The European Committee of Council of Ministers accepted the document in November 2004, but not by the Council of Ministers meaning that the strategy is not a formally binding document. In a formal sense, it cannot be treated as a formal strategy. The draft of the eHealth strategy is based on *The Poland Strategy for the years 2004-2006*, prepared by The Ministry for Science and Informatisation adopted by The Council of Ministers on 13 January 2004 and constitutes its broader concept on the activities related to the health insurance system. The strategy aims at the access to information about health on the Internet, at the improvement of the efficiency of the healthcare system by providing an electronic workflow of documents and medical information systems allowing for the analysis of demand for health services in Poland. The above mentioned aims were supposed to be implemented by: developing ICT in medical institutions; establishing central databases and registers; giving access to medical information; developing telemedicine; implementing health education and promotion and implementing security and data protection regulations.

The *Strategy of the Development of Healthcare for 2007 - 2013* (Strategia rozwoju ochrony zdrowia w Polsce 2007 - 2013) prepared by the Ministry of Health in June 2005 consists of 4 priorities: increase of the healthcare system; increase of effectiveness of the functioning of the healthcare system; adjustment of the healthcare to the demographical long-term dynamic trends and improvement of the health of the society in order to reduce the existing gap between Poland and the average healthcare level in the EU (*Strategy of the Development of Healthcare for 2007 - 2013*). None of these priorities or its measures mention the need of implementing the eHealth strategy. Currently, it is too early for the evaluation of the mechanism. No concrete eHealth projects can be reported, because no data is available at the moment. So far, no research or surveys assessing the impact of the implementation of eHealth projects achievements have been carried out.

The Registration System of Health Administration Units (RZOZ) realizes the operating goal of the above strategy and contributes to the reduction of information shortages in the range of the healthcare policy formation. Among the other tasks, the development of medical information system, the creation of central databases, information registration system of the Health Administration Units, the dissemination of information about the public, access to data on possibilities of using the healthcare service are essential tasks of RZOZ.

Within measure 3.3 "Development of ICT in the economy and administration" the following instruments for realisation of Lisbon objectives were stated: diffusion of usage of ICT in healthcare sector; adoption of existing regulation within eHealth to the European standards; development of telemedicine. The Polish Lisbon Strategy Forum and the National Reform Plan 2005-2008 was a long-term civil society initiative, which intends to provide analysis and join non-governmental organization, administration, businesses, academia and society at large in public debate for better public policy in Poland and Europe. The Polish Lisbon Strategy Forum is the polish partnership for reforms to be conducted in line with Lisbon objectives (Radło, 2005).

The *National Computerisation Plan for 2006* was accepted by the Council of Ministers on the 1 August 2006. It sets the following priorities for the eHealth development: increase of effectiveness of health information systems, especially in the context of demographic challenges in Europe (Journal of Law No 147, item. 1063 and 1064). The priority sets the following actions: development of integration platform on central and regional level for forecasting the needs of the users and clearing national healthcare accounts; standardisation on national and European level within electronic registration, processing and exchanging administrative and medical data; introducing electronic system for clearing the medical services accounts; introducing ePrescription systems; development of integrated information systems; dissemination of telemedicine. Even though, *The National Computerisation Plan for 2006* has been enacted, it is rather general so more details will probably be provided in the Plan for 2007-2013, which should be adopted in 2007.

The eHealth strategy has not been implemented in any of the Polish regions. Currently, some of the regional authorities are starting to develop their own regional eHealth strategy (the dolnoslaski region). The Lodz region has even published a call for tenders to prepare a local eHealth strategy. On

20 September 2006, the regional authorities signed a contract with a private association to prepare **The eHealth Strategy for the Łódź Region for the Years 2007-2013.** The strategy was to be adopted by the end of April 2007. It will be the first regional, and probably the first official eHealth-related strategy adopted in Poland. The regional authorities announced that there is a will to put the eHealth strategy implementation into the budget of the region and into the financial means of the ERDF in form of the Regional Operational Programme. The region has also created its own eHealth webpage - www.ezdrowie.lodzkie.pl.

There are no specific measures for monitoring the development of eHealth. Some information on the level of development of eHealth can be found in the reports on monitoring the implementation of the Strategy on the development of the information society -ePoland for the years 2004-2006, for instance implementation of ZOZmail system, development of central registries).

II.3. The legal framework supporting the eGovernment and eHealth applications

II.3.1. Laws and acts adopted in Poland in the areas of eGovernment and eHealth

Poland is one of the EU countries that has introduced a rather comprehensive framework for eGovernment and eHealth services in the European Union, which provides a necessary legal background for numerous initiatives on central and regional levels.

The first legal act to implement the notion of eGovernment into the Polish legal system was the Act of 6 September 2001 on **Access to Public Information (AAPI)** (Journal of Law, No 112, item 1198), which came into force in January 2002. Public information includes: information on internal and external policy, competences and organization of various public bodies, legal acts, data on budget and public assets etc (art.7). The law obliges public institutions to create an electronic Public Information Bulletin (PIB) where public information could be stored and accessed (art. 8). Ministry of Internal Affairs and Administration was obliged to create a main website for PIB and other public institutions have to develop their own local versions of PIB. AAPI allows unrestricted access to public information (art. 2) and all public bodies must provide such information within 14 days. Although some information related to state and business secrets as well as personal privacy will not be handed over. The aforementioned bodies include public administration as well as private bodies that exercise public tasks, trade unions and political parties (art. 4). Denials of access to public information can be challenged in a court. Finally, one should mention that this act is under review at the moment. One of the grounds for review is the necessity of implementation of new European Directive on the Re-use of Public Sector Information, which establishes harmonised rules for using public sector information by private companies (Directive 2003/98/EC of 17 November 2003).

In addition, **The Law on Protection of Personal Data (LPPD)** is of importance to both public bodies as well as hospitals because of strict rules governing the collection and exchange of personal data (Journal of Law, No.133, item 883; Journal of Law, No. 101 item 926). For instance, article 40 of LPPD requires all administrators of personal data to register such databases with the General Inspector of Personal Data, although there are some exceptions in this field (Art.43). Furthermore, individuals are granted numerous rights with respect to access to their personal data, its correction or deletion. LPPD implements European Directive 95/46 on data protection (Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995).

The Act on Electronic Signatures from 18 September 2001 is another important development concerning eGovernment and eHealth applications (Journal of Law, No 130, item 1450). The terms and conditions, legal effects of the use of the electronic signature, rules on providing certification services, as well as rules on the control over entities providing such services are laid down in the European Directive on Electronic Signature, which the aforementioned statute implements. The Act differentiates two types of signatures: electronic signature, and secure electronic signature. Electronic signatures, although still not widely used in practice, are the fundaments of many eGovernment

initiatives described in this report, as it is the only technology that gained widespread parliamentary trust. Finally, one should mention interesting regulations in the area of electronic taxes. Firstly, Polish government adopted an ordinance permitting the issuance of electronic invoices. According to § 4 of The Ordinance of The Minister of Finance of 14 July 2005 on Issuing and Submission of Invoices in Electronic Form, as well as the Procedures on Storage and Availability to the Tax Institutions, the invoice has to be signed using qualified electronic signatures or sent within EDI network (Electronic Data Interchange). Also, the prior acceptance of the addressee is required (§ 5). Corporations that intend to store their electronic invoices outside of Poland will have to notify the control apparatus first (§ 6).

However, the fundamental statute with respect to the introduction of electronic services is **the Act on Informatisation of Entities Providing Public Acts (AIEPPA)**, which entered into force on 21 July 2005 together with ten regulations that supplement it (Journal of Law, No 64, item 565). This act establishes minimal technical requirements for computerization of public bodies as well as rules particularly for Government-to-Government (G-two-G) information exchange.

Obligations apply to e.g. government administration units, public healthcare institutions, state control and law enforcement authorities, courts, public prosecutors' offices, local and regional public authorities, budgetary entities and units, funds, the Social Security Agency, the Agricultural Social Security Agency (KRUS), the National Health Fund corporations established by the state or local authorities for fulfilling public tasks (art. 2.1). The Act also covers other entities, if they are vested, by a governmental agency, with a public task that requires transfer of information to or from an entity, which is not a public body (art. 2.2). Nevertheless, several entities are exempted from the provisions of the Act, including public enterprises and public universities (art. 2.3).

The Act contains seven different objectives. Firstly, AIEPPA sets up a National Computerisation Plan valid for five years. One of the objectives of the NCP, is to coordinate, modernise and secure public information systems (art 5.2). The Plan coordinates projects managed by more than two public bodies. All of the single-area and multi-domain ICT projects have to be included in this plan, together with the financial justification for them. A relevant minister enacts single-area projects, whereas multi-domain, cross-sectoral projects are established by the Council of Ministers. A Informatisation Council drafts computerisation plans and projects, which is an advisory board to the Ministry of Science and Information Technology (art. 17) (Journal of Law, No 128, item 1072).

Secondly, the Act sets up minimal standards for public information systems, public registries and exchange of information in public sector.[45] It is interesting to note that the minimal standards are actually well known and widely used Internet protocols and file formats. Public institutions should support several communication and encryption protocols enabling the exchange of data with other public information systems, such as SSL 3.0 or .doc format. However, the aforementioned regulation does not contain any regulation on accessibility or web usability.

Public institutions are therefore required to fulfil minimal requirements set out in The Ordinance on Minimal Requirements and support at least one of the above technical standards in a given category. Furthermore, pursuant to article 13 of the **Act on Informatisation Public Entities** are also obliged to treat all technologies in an equal manner. In addition, public institutions have to publish online data formats, communication and encryption protocols as well as document structures and acceptance tests in the Public Information Bulletin (Biuletyn Informacji Publicznej-BIP) (art. 13.2.2).

Similar requirements have to be fulfilled by electronic registries, which have to enable access to and submission of information via electronic means, respect minimal technological standards and comply with any additional set of minimal requirements for public registries (art. 14). These minimal requirements are listed in a separate ordinance, which contains a list of data structures (fields and their

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[45]   These standards are described in The Ordinance of the Council of Ministers of 11 October 2005 on Minimal Requirements for Tele-Information Systems (Journal of Law, No 212, item 1766).

lengths) that should be adhered to by public institutions when collecting and exchanging information (Journal of Law, No. 214, item. 1781). Only public institutions are guaranteed free access to electronic registries (art. 15).

Thirdly, the Act obliges all public bodies including public healthcare institutions to enable electronic communication with other public institutions (art. 16). What follows from this obligation is that such institutions, even if they do not have information systems in place should develop and ensure that such systems fulfil the minimal requirements for information systems and registries.

The obligation to ensure electronic communication is further expanded in The Ordinance of the Prime Minister of 29 September 2005 on Organizational and Technical Conditions for Submission Electronic Documents to Public Bodies (Journal of Law from 2005, No. 200, item 1651). The act sets out the conditions for submission of electronic documents to public institutions. The technical framework deals with data structures and formats of electronic documents that ought to be supported by public institutions. The documents should be submitted to public institutions using document structures and data formats listed in The Ordinance on Minimal Requirements. Public bodies should therefore accept documents sent in ".doc" or ".pdf" format provided that the required structure of the document is ensured. It is important to stress that public bodies have to establish definitions of data structures and make them available online in Public Information Bulletin. What is interesting in the context of eHealth, public and non-public healthcare institutions, is that they can use other physical structures of electronic documents than those referred to above in order to exchange data on protection of health (§ 3.2 of the Ordinance). What follows, ICT projects concerning eHealth have access to a greater variety of technical standards concerning physical structures of electronic documents than other public bodies. This, however, slightly increases the risk that eHealth systems might not always be compatible with other public institution systems.

The Ordinance on Submission Electronic Documents to Public Bodies also sets out the organisational framework for submission of electronic documents. Electronic documents can be delivered either via computer network or on data carriers such as floppy disk. Public institutions should establish electronic contact points for the purpose of network-mediated data delivery. The process of network-mediated delivery of electronic document is simpler as it requires automatic transfer of data from the electronic document to an information system and then automatic generation and delivery of receipt confirmation via the network. Electronic documents saved on data carriers must be manually keyed into an information system of a public body and confirmation receipt must be generated and saved on a data carrier on which it a document was submitted. In consequence, it may not always be possible to save confirmation of receipt on CD-Rs. Such solution also requires every public institution to have CD and DVD recorders. Public bodies are obliged to store generated receipt acknowledgments for the period for which electronic documents should be stored. The deadline for the implementation of the obligations to implement the organizational framework described above was the 17th of August 2006, but the obligation was postponed. At the moment, governmental bodies were given additional two year period to conform to the obligation.

Fourthly, the Act on Informatisation of Entities Providing Public Acts establishes rules on the control of the implementation of public information systems. Since public bodies are required to fulfil minimal standards, the Act obliges a software developer to test its solution (acceptance tests), at its own expense, before the first use and after each modification of a computer programme (art. 21). A public institution may verify its tests. The ordinance on acceptance tests expands these norms, requiring for instance that a public body provides a detailed description of the required tests and ensures free access to the testing software (Journal of Law, No. 217, item 1836).

Fifthly, AIEPPA has established a countrywide **National Registry of Information Systems and Public Registers** (Krajowa Ewidencja Systemów Teleinformatycznych i Rejestrów Publicznych). As the name suggests, the registry is going to contain data about all public information systems and public registers (whether computerized or not). The Minister of Education and Science manages the Registry. All the details regarding the operations of the Registry are contained in

Sixthly, the Act has changed the most important statute dealing with the administrative procedure, namely **The Code of Administrative Procedure - CPA** (Journal of Law, No. 98, item 1071).Accordingly, an individual or a company can submit an application to a public administrative body using electronic mail or web form, but such document must be in a specified format and signed using an advanced electronic signature based on a qualified certificate (art. 63 CPA). Identical technique will be required for electronic communication with the Social Security Agency.[46] A public body can only deliver administrative decisions and other acts in an electronic manner if an individual or a company has requested it or has accepted this form of communication (art. 391 § 1). The delivery of such documents by public bodies to individuals is considered effective provided that an addressee confirms the receipt within 7 days.

Although Polish law described so far contains quite an extensive body of useful rules dealing with eGovernment and eHealth, it is important to stress that rules relating to interactions between government and citizens (G-two-C) as well as government and businesses (G-two-B) are not fully developed yet. The Ministry of Internal Affairs and Administration has only recently issued a ordinance based on art. 391 § 2 CPA that would specify the necessary document structures, data formats as well as organizational and technical conditions for submission of electronic documents by individuals and companies, akin to the aforementioned ordinance that relate to G-two-G data exchange (Journal of Law, No.227, item 1664). Furthermore, public administration was given 4 years from the day of coming into force of the Electronic Signature Act (ESA) mentioned above to enable submission of electronic applications (Journal of Law, No. 130, item 1450). The deadline was missed by a vast majority of public administrative bodies and it is likely that the new two year *vacatio legis* ending on 1st of May 2008 may also be insufficient (Journal of Law , No. 130, item 1450).

Apart from the aforementioned laws on electronic signature, laws on computerisation of public administration and laws on access to public information, Poland has issued laws dealing with public procurement. **The Law on Public Procurement (LPP)** broadly speaking applies to the procurement of goods, services and construction contracts by public administration and healthcare institutions (2004/17/EC and 2004/18/EC). Tenders can be submitted online at www.uzp.gov.pl/przesyl.html and published in Public Procurement Bulletin (PPB), also available online (Office of Public Procurement, 2006) The Act permits submission of requests and information by electronic means provided that a recipient confirms the receipt without undue delay (art. 27-28). LPP also permits electronic communication with the Office for Public Procurement in case of urgency (art. 49 § 4). Parties to electronic auction must communicate using electronic means (art. 77). An offer must be submitted using advanced electronic signature based on a qualified certificate (art. 78 § 1). However, the offer ceases to bind as soon as another participant makes a lower bid (art. 78 § 2), therefore, one may conclude that the only determinant in electronic auctions is the price. The contracting authority may organise however, a one-stage or a multi-stage electronic auction that eliminates non-bidders. In any case, a public body must inform a winner and other participants about the outcome of the electronic auction immediately after it is closed. The contracting authority must select a bidder who offered the lowest price (art. 80 § 3).

Apart from the laws described above, there are numerous legal acts that regulate specific aspects of eGovernment (the area of eHealth does not contain such specific rules). Examples include The Act on Publishing Normative Acts and Other Legal Acts of 20 July 2000 (Journal of Law, No. 62, item 718), which permits electronic publication of laws or The Act on Road Traffic of 20 June 1997 (Journal of Law, No. 108, item 908) that established a central registry of vehicles and drivers that should be available online. One should also mention legislation on electronic communication. There are also numerous other legal acts of some importance, but the aforementioned are certainly the most fundamental.

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[46]   See art. 40 of AIEPPA, which modifies the law on social security. The change will enter into force from 27 July 2007.

The administrative authority was obliged to send all correspondence to the petitioner by mail. From the 21 November 2005, the amended code of administrative procedure allowed for the first time to equate the e-mail form with the letter practice (art. 39¹). E-mail became a communication tool within the Polish administration (Journal of Law No. 30, item 168).

II.3.2. The extent of alignment of the national eGovernment and eHealth legislation with the EU requirements

The effect of integration of Poland with the European Communities is clearly visible with respect to the results of the implementation of the following instruments: directives on electronic signatures, two directives on public procurement, directive on protection of personal data, directive on the re-use of public sector information directive on the protection of privacy in electronic communication and other directives from the telecommunication package and so on. Polish laws implementing these directives contributed to the creation of a harmonized framework for eServices within the EU. Furthermore, one should also mention the positive effects of European strategies in this field such as eEurope action plans or i2010 strategy, which created a useful starting point for a development of national instruments in this area.

The development of eGovernment and eHealth is hampered by an imperfect regulatory framework, especially in the area of: tax law, electronic signatures, public procurement and court procedures. In the first area, a major reform aiming at the simplification of tax procedures is required that would allow business and individuals to lodge tax declarations online. Many problems are caused by the legal requirement of payment for an administrative act or decision in the form of stamps, which are a serious obstacle to the proliferation of electronic administration. Also, malfunctioning software, lack of electronic forms and a low popularity of electronic signatures create additional issues. The problem of the electronic signature implementation is compounded by various digital signature standards that are offered on the Polish market. A major issue with respect to the take-up of electronic communication with public administration by individuals is due to the lack of regulation concerning standards of submission of documents in administrative as well as in civil law procedure. Without detailed regulations and common use of electronic signatures, individuals can not communicate with public administration.

II.3.3. The degree of implementation of the European Union initiatives to government policies

The government policies included the proposals and suggestions of the European Union. The previous strategic documents were coherent with eEurope 2002, eEurope 2003+, eEurope 2005 and i2010 initiatives. It has to be stated that Poland has not reached the goals of eEurope 2005 (which were transformed in eGovernment Action Plan for the years 2005-2006) - especially in the case of broadband penetration and development of electronic public services. The i2010 initiative has been embedded in the draft of the NCP for 2006. The following sections outline the objectives of i2010 and the key activities transformed into the NCP for 2006 (Table 13).

Table 13. The objectives of i2010 and the key objectives of National Computerization Plan

Objectives of i2010	Objectives of National Computerisation Plan
The completion of a Single European Information Space which promotes an open and competitive internal market for information society and media;	Analysis of the regulatory framework and comprehensive revision of administration procedure in context of provision of eServices, with aim to create a seamless European information space.
Strengthening Innovation and Investment in ICT research to promote growth and more and better jobs;	Support for development of new technologies to strengthen the competitiveness of the economy via the following actions: • Increased participation of Polish entities in programmes supporting the development of information society (eTEN, eContentPlus, Safer Internet Plus) which will be included in the future Framework Programme for Competitiveness and Innovation • Support for new technologies emerging from 6th and 7th Framework Programme, support for development of National Research Programme • Using technology as a tool for enforced cooperation between science and economy.
Achieving an Inclusive European Information Society that promotes growth and jobs in a manner that is consistent with sustainable development and that priorities better public services and quality of life.	The NCP sets the following priority for development of information society: Reinforcing social, economic and territorial cohesion by making ICT products and services more accessible, including in regions lagging behind, is an economic, social, ethical and political imperative.

Source: based on: www.mswia.gov.pl, 2006

The main assumptions of the European policies were transported into the national strategies, and the different levels of development of eGovernment and eHealth in Poland in comparison to the EU have been taken into account. The detailed eGovernment and eHealth action plans on one side and the NCP on the other are presented in the table below (Table 14).

Table 14. eGovernment and eHealth action plans

eGovernment Action Plan	The National Computerisation Plan
1. No citizen left behind - advancing inclusion through eGovernment	1. Common and easy access to broadband and ICT 2. Use of the Internet as a tool of empowerment of local communities
2. Making efficiency and effectiveness a reality	Rationalization of public administration expenses in the area of informatisation
3. High impact key services for citizens and businesses	Development of ePublic services
4. Putting key enablers in place	Introduction of public electronic identifier Creation of legal environment for the national systems and public registers and its interoperability Exchange of best practices in the area of standardisation
Strengthening participation and democratic decision making in Europe	Common usage of secure electronic identification , taking into account data privacy regulations Introduction of ICT tools enhancing social communication and more effective usage of eDemocracy and eCommunications
eHealth Action Plan	**The National Computerisation Plan**
Addressing common challenges 1. Health authorities leadership 2. Interoperability of health information systems 3. Mobility of patients and health professionals 4. Enhancing infrastructure and technologies 5. Conformity testing and accreditation for eHealth market 6. Leveraging investments 7. Legal and regulatory issues	 x Standardisation on the national, European and international level to insure the interoperability of health information systems Enhancing the efficiency and effectiveness of health information systems regarding increased mobility and demographic trends x x x
Pilot actions: accelerating beneficial implementation 1. Information for citizens and authorities on health education and disease prevention 2. Towards integrated health information networks 3. Promoting the use of cards in healthcare	 Building the integrated systems on health information x Common usage of health cards
Working together and monitoring practice 1. Disseminating best practices 2. Benchmarking 3. International cooperation	X

Source: based on: www.mswia.gov.pl, 2006

It has to be noted that the eEurope 2005 objectives have not been reached in Poland so far. The specific problems that have been addressed are complexity of legal system, interoperability of registries and insufficient pace of development of eServices. The NCP for 2006 as one of the main priorities sets the necessity to change legal acts hindering the development of eGovernment, since the new computerisation plan is to be introduced by the end of 2006, the NCP for 2006 establishes a framework for the future informatisation policy.

II.4.   The current state of ICT infrastructure in Poland

II.4.1. ICT infrastructure in Poland for eGovernment and eHealth

On the infrastructure level, STAP network and the academic PIONIER network are the two most important infrastructural projects (Map 4).

The STAP network is still in the planning phase. A 2005 Report on "eGovernment in the Member States of the European Union" prepared by IDABC eGovernment observatory mentioned that "a nationwide network linking central government departments, offices and agencies, and local government, is due to be completed by the end of 2005. However, this goal has not been accomplished yet.

STAP will be a network linking all public bodies and will provide the basic infrastructure on which the major eGovernment applications, namely, Wrota Polski (Gateway to Poland) and ePUAP platform will run. Public administration will be offered common services such as countrywide access to the Internet, exchange of documents between public institutions, electronic signatures, Internet telephony and videoconferencing. It will also allow to exchange documents with EU public bodies thanks to EWD-P (Electronic Data Interchange) (Elektroniczna Wymiana Danych) system. The network will probably be based on existing CEPiK network (described below).

The strategic objective of the PIONIER[47] network was to build a countrywide optical network connecting all academic and metropolitan networks in Poland and provide the scientists with access to advanced network infrastructure and specialized infrastructure (including grids and HPC systems).[48] The PIONIER programme covers the development of infrastructure, test pilot services and applications and software development for new applications.

The consortium of universities and academic entities built a modern optical broadband network, which connects 21 academic Metropolitan Area Networks (MAN), with over 700 academic units, including universities, institutes of Polish Academy of Sciences, hospitals, libraries and industrial R&D institutes. The network provides also interconnectivity with the European GÉANT network. Currently PIONIER includes about almost 6000 km and uses connections like 10 Gbit/s link to GEANT (Map 4).

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[47] Polish Optical Internet - Advanced Applications, Services and Technologies for Information Societe
[48] www.pionier.gov.pl

Map 4. The current topology of the PIONIER network
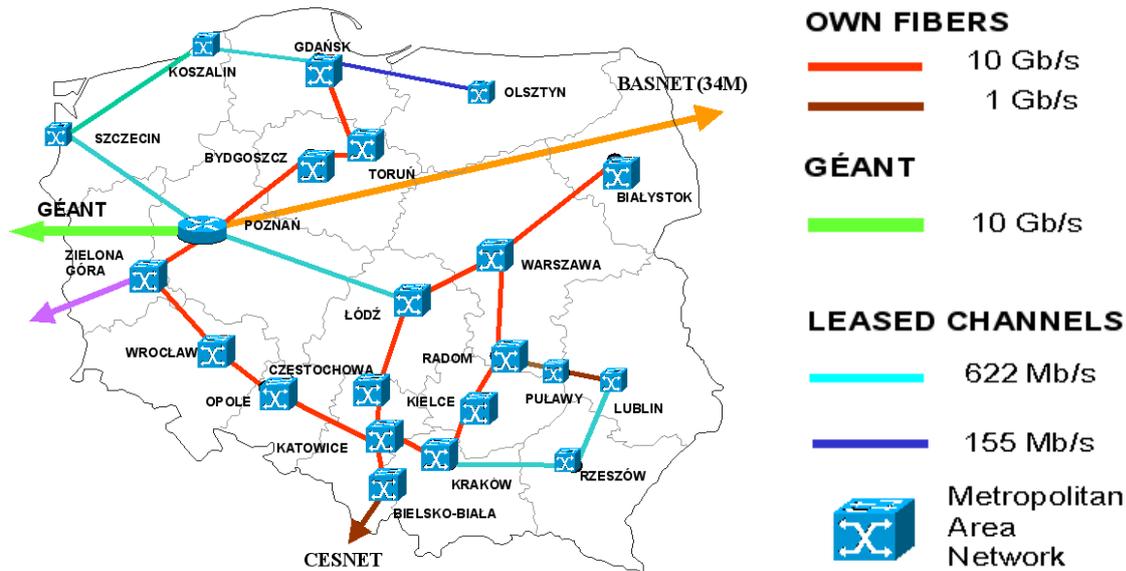
Source: www.pionier.gov.pl, 2006

The High-Performance Computing (HPC) centres in Poland represent the strategic nodes in the PIONIER network. There are 5 HPC in Poland, which are spread over the whole country. Such a location of the HPC has a positive impact on the development of regional infrastructure and initiatives in the field of IST. The HPC centres play a key role in the Polish system of IT infrastructure, because they have the necessary potential to develop RTD activities at the national and international levels (highly qualified academic personnel, modern high-performance computers, international experience due to participation in European research programmes, etc.). The HPC centres act as: RTD centres, computational high-performance centres for science, educational and training institutions, IT centres and Internet service providers, databases and data grids, centres for IST initiatives and projects.

The National Healthcare ICT system was divided into two main groups. The Ministry of Health has decided to choose two companies, which would be responsible for the ICT systems in the Polish health sector: ComputerLand[49] and Kamsoft[50] (Word Annex 17). Currently ComputerLand, the software and hardware provider of the START system, designed and implemented IT System in 8 branches of the National Health Fund: Dolnośląski, Lubuski, Łódzki, Małopolski, Opolski, Podkarpacki, Pomorski, and Śląski in 1999. The system supports work on all organisational levels of NHF: in the headquarters, in 8 regional branches, in 30 regional offices of these branches, 50 field Register of Medical Services (RUM) and service points. Over 18 thousand recipients communicating with regional branches of the NHF through the wide area network (WAN) work in the unit that supports recording benefits and settlements of agreements by healthcare providers.[51]

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[49]   www.computerland.pl
[50]   www.kamsoft.pl
[51]   www.computerland.pl

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

eGovernment services

The development of fully-fledged and integrated eGovernment portal (project known as ePUAP) that would provide information and services to both citizens and businesses remains the essential objective of the Polish government.[52] The first phase of the development of the project is being co-financed from the structural funds e.g. SPO WKP and is forecasted to be implemented in the years 2006-2008.[53] The project is to embrace the following functional fields:

a) information portal for services of public administration, including services provided electronically;

b) common platform for electronic public services;

c) standards, interoperability, data models and publication of interoperability standards.

Although a national integrated platform has not been developed in Poland yet, the authorities of several regions, including: Podlasie, Małopolska, Opolszczyzna and Pomerania, have signed agreements to develop regional gateways. The regional platforms offer eServices of various degree of complexity ranging from provision of information or forms to download to one-way or two-way transactions. They concern: payments, subsidies, applying for vacant posts, concessions, permits, access to public information, issuing documents and certificates, submitting information, name changes, establishing cultural institutions, etc.

However, it is important to realise that the idea of a Gateway to Poland is being developed only on a regional basis. It covers only certain regions and offers electronic services to even fewer inhabitants of a given region (for example, certain services such as electronic building permits are offered only to citizens of selected counties rather than to all people from a given region). The ePUAP platform needs to be mentioned here as the prospective central public administration platform guaranteeing the provision of electronic public services enlisted in Virtual Poland project for individuals and businesses. ePUAP will integrate existing developments such as legacy systems of various public bodies based on platforms such as the Gateway Małopolska. The system will consist of the back office application known as STAP[54] and European extension platform known as EWD-P. The back-office STAP will constitute the internal network of the public administration in Poland. The EWD-P will provide the European information for the Polish public administration. The ePUAP platform will allow businesses and individuals to access various public bodies through a single entry point. It most advanced form ePUAP will offer numerous two-way and transactional services with user authentication such as payment of taxes or public procurement. The project assumes 19 services for citizens and 9 for businesses. The estimated cost of the project will amount to EUR 250 million. The project is due to be accomplished probably by 2008.

So far, the eServices for businesses are at a higher level of development in comparison to the ones developed for citizens. The latter in most cases have to rely on one-way services. Since the information and services for citizens and businesses available online are not presented in an integrated way, they are described below on the basis of the list of twenty essential public services adopted by the EU Council in March 2001, including twelve for citizens and eight for businesses.

The sophistication of the services is assessed using the following four-stage framework established by the Council: (1. Information: online info about public services; 2. Interaction: downloading of forms; 3. Two-way interaction: processing of forms, incl. authentication; 4. Transaction: case handling; decision and delivery (payment) (eGovernment indicators for benchmarking eEurope 2006).

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[52] Since January 1, 2006 the Polish Ministry of Internal Affairs and Administration has participated in the 6th eGovernment Framework Program. The main objective of the project is to create national research programs, to encourage initiatives in the e-Government area and to integrate the existing research programs.

[53] Cities on Internet, www.mwi.pl

[54] See in details under II.4.1.

The eGovernment services for citizens (G-to-C) and its interactivity:

1. **Income taxes: declaration, notification of assessment (2):** The eServices are provided by the Ministry of Finance and offer information and forms to download. The Ministry introduced some transactional eServices for businesses (2006) and is planning to introduce services to citizens (2012).

2. **Job search services by labour offices (1):** The Ministry of Economic Affairs and Labour provide the services. The portal offers information for the prospective employees (the ePULS system) as well as for employers.

3. **Social security contributions:**

   a) **Unemployment benefits (2):** The services provided by the Ministry of Social Policy, precisely by the Social Security Agency, as well as the Ministry of Economic Affairs and Labour (benefits concerning the cases of employers' insolvency or bankruptcy). They include information and forms to download. The registration and benefit payment are handled by the county offices.

   b) **Child allowances (1):** The services are provided by the Social Insurance Institution. They offer information concerning family allowances. The registration for the benefits and the payment are managed by employers or local social insurance offices.

   c) **Medical costs (reimbursement or direct settlement) (1):** The services are provided by the Ministry of Health, i.e. the National Health Fund established in January 2003. The healthcare institutions that cooperate with the Fund offer free services to patients covered by the general health insurance. The Ministry of Health specifies the medicines that can be prescribed to be bought at a lower price.

   d) **Student grants (1):** The services are offered by the Ministry of Education and Science. The grants are mainly offered by higher education institutions, but the Ministry offers information considering numerous international grants and its own proposals.

4. **Personal Documents (passport and driver's license)**

   a) **Passport (1):** Service provided by the Ministry of Internal Affairs and Administration.

   b) **Driver's license (1):** Service provided by the Department of Road Transport of the Ministry of Infrastructure.

5. **Car registration (new, used and imported cars) (1):** The services are provided by the Department of Road Transport of the Ministry of Infrastructure. Car users can now use a Central Registry of Vehicles and Drivers (Centralna Ewidencja Pojazdów i Kierowców - CEPiP). The system contains information about cars and car drivers.

6. **Application for building/planning permission (1):** The services are provided regionally and locally. Citizens have online access only to information.

7. **Declaration to the police (e.g. in case of theft) (1):** The services are managed by the Police supervised by the Ministry of Internal Affairs and Administration.

8. **Public libraries (availability of catalogues, search tools) (2):** The services are managed by local authorities. The information available online on different websites. Electronic catalogues and search tools were introduced by the National Library in Warsaw, the State Archives and the main university libraries. The Polish Internet Library established in December 2002 is meant to provide access to eBooks including the masterpieces of ancient Polish literature and also graphics, paintings and scientific works, and offer services for the blind by the end of 2008.

9. **Certificates (birth, marriage): request and delivery (1/2):** Issued by local authorities. Information is available online, sometimes accompanied by forms to download.

10. **Enrolment in higher education/university** (3): Online information is provided by the higher education institutions themselves. Some universities (e.g. the Warsaw University) offer the possibility to register for courses and give exams to their students and candidates. As far as high school final exam results are concerned, there are plans to collect the data online and enable higher education institutions to have access to them at enrolment.

11. **Change of address (1/2)** Local authorities provide online information and forms to download.

The services for businesses (G-to-B) and its interactivity:

1. **Social contribution for employees (3)**: The services are provided by the Social Insurance Institution. It implemented an online system called Płatnik (Payer) that enables businesses to send social security declarations.

2. **Corporation tax: declaration, notification (2)**:The services are managed by the Ministry of Finance. Information and forms to download are available online. The Ministry has introduced transactional eServices for larger businesses in October 2006

3. **VAT: declaration, notification (2):** The services are managed by the Ministry of Finance. Information and forms to download are available online. The Ministry has introduced transactional eServices for larger businesses in October 2006

4. **Registration of a new company (3):** The services are provided by the Ministry of Justice, i.e. the National Court Register.

5. **Submission of data to statistical offices (3):** Data are submitted to regional statistical offices supervised by the Central Statistical Office (GUS) which can be done with the use of the client programme to download and the national and INTRASTAT system forms available online.

6. **Customs declarations (3):** The services are provided by the Customs Service of the Republic of Poland. The data concerning the trade with the EU and non-EU countries are submitted in the form of Single Administrative Documents (SAD, the forms available online) via the using CELINA WEB-CEL and CELINA OPUS subsystems (for standard and simplified procedures respectively). The subsystems operate as the customs gateway.

7. **Environment-related permits (incl. reporting) (1/2):** The services are provided by the Ministry of the Environment.

8. **Public procurement (2):** The services are offered by the Office of Public Procurement. Information can be found in the official Public Procurement Bulletin with the use of the search engine. The website provides data concerning contract awards and enables tender publication online by the public administration.

The above-mentioned services are generally inaccessible to foreigners, who in some cases (e.g. the Customs Service or the Central Insurance Office) can find only basic online information provided mostly in English (sometimes also in German, French or - rarely - Spanish). The forms to download are available only in Polish. In general, G-two-C applications are still in the early stage of development as they provide primarily informational services. G-two-B services are more advanced and more often used. However, the full interactivity including online payment is still pretty far away.

Other eGovernment services offered by public institutions

1. **Ministry of Interior and Administration:**

   a) ePUAP - Electronic Platform of Public Administration Services - Integrated information platform supporting the provision of electronic public services for administration (front-office);

   b) Broadband Internet: STAP Warsaw (information network for public administration in Warsaw) and STAP Poland (information network for public administration in Poland).

2. **Ministry of Economy:**

   a) Info kiosk network: purchase and implement info kiosks with Internet access, equipped with a standardised monitoring;

   b) Information portal of the Ministry of Economy: The portal would include information on the economy, regional development, tourism and labour. Forms and brochures will be available online;

   c) Structural Funds Portal: The portal is addressed to entities applying for programmes and projects funding within structural funds. Apart from providing information, the portal will also make it possible to fill in applications thanks to the so-called generators and form templates;

d) Public Employment Services Portal: The portal is supposed to provide information on the labour market and a databases on public employment services;

e) EURES Job Offers Exchange Systems: The system is based on the existing ePULS system, which is a public employment services information resources. It shall be expanded so that job seekers and employers will be able to submit their offers;

3. Ministry of National Education:

a) Internet Centres for Multimedia Information in School and Pedagogical Libraries: to provide school and pedagogical libraries with computer equipment and to create multimedia information centres;

4. Ministry of Transport and Construction

a) Government portal: The eGovernment portal makes it possible for citizens to submit documents with the use of electronic signature;

b) Electronic flow of documents: Development and implementation of the documents flow system, case status monitoring and electronic documents exchange.

5. Ministry of Finance

a) **Public eServices:**

- **eDeclarations:** is a communication channel between the internal revenue administration and external entities, which involves the creation of the possibility to supply tax Public Key Infrastructure (PKI), forms online (personal, corporate and VAT taxes).

- **eStats**: provides statistics to National Statistic Office online;

- **Syriusz eGovernment:** as an information system for labour offices, and online services;

- **eEnvironment**: is an electronic service related to using the environment (eEnvironment);

b) **IMIK** - Information System for Monitoring and Financial Control of Structural Funds and Cohesion): aiming to support the EU funds absorption process - development (mainly the Generator of Applications) and system maintenance.

c) **CELINA + INTRASTAT**: systems Customs Declarations Processing System. It enables to submit SAD and SAD-INTRASTAT via the Internet - development and maintenance. The System consists of two applications: CELINA OPUS and CELINA Web-Cel.[55] The latter is used for processing standard customs applications, whereas the former is used for simplified procedures. In order to use the system, the users must first apply for a username and password to a relevant customs authority. The submission procedure requires the use of advanced electronic signatures based on a qualified certificate generated by the system. Having such electronic signature, a user can electronically sign XML-based customs declaration and submit it using one of the systems.[56]

On the other hand, in August 2006 the Ministry of Finance finally rolled out the first phase of the eDeklaracje (eStatement) project which allows entrepreneurs to lodge tax declarations online, communicate with tax offices and conduct all other necessary activities in a digital manner (Ministry of Finance 2006). Currently, only around 7,500 larger businesses with a yearly turnover above 5 million euro will be able to lodge tax returns, so as PIT-4 and PIT-8A forms concerning monthly advance payment towards employers' income taxes and fixed taxes respectively. The total cost of the system will be EUR 39.9 million (PLN 152 million) and is due to be completed in 2007.

On the 16 August 2006, the new Ministry of Finance portal enabling to submit the eStatement was established (www.e-poltax.mf.gov.pl). There are not any technological (PC, Macintosh) nor software obstacles (may be used by users of Internet Explorer 5.01, FireFox, Opera, Mozzila) and accepts all classified eSignatures available in Poland.[57]

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[55] https://www.celina.krakow.uc.gov.pl/
[56] https://www.certyfikaty.krakow.uc.gov.pl/
[57] Matusik, Magdalena, PIT-4 i PIT-8A już na portalu (PIT-4 i PIT-8A already in the portal), Rzeczpospolita from 17.08.2006.

6. Ministry of Social Policy and Labour:

a) **Social Policy Information Portal**: The portal with information on welfare, family benefits, social insurance, the disabled, veterans, non-governmental organisations. Forms and brochures will be available online (2004 - 2006);

b) **National Welfare Monitoring System**: Developing a data warehouse on the central level consisting of a system of defined reports and forms enabling advanced analyses of the scope and directions of welfare (2004 - 2006);

c) **National Family Benefits Monitoring System**: Developing a data warehouse on the central level of a system of defined reports and forms will enable advanced analyses of the scope and directions of the assistance provided for family (2004 - 2005).

7. Central Office of Geodesy and Cartography:

a) **MATRA II** Design of Cadastral Database Model in Poland: Pilot implementation of the application to make available information from the registers of land and buildings from a given province via the Internet;

b) **ERDF/GEOBAZA**: Development of modern repository of digital geographical information (2005 - 2006 with ERDF financial support).

8. Social Security Agency:

a) **SDWI:** two-way information exchange between social contribution payers and ZUS. It will be possible to make available notices and data to payers (2005-2006) as well as enabling a group of payers to fill in and submit documents online;

b) **ZUS** - Complex Information System for Social Security Agency (Kompleksowy System Informatyczny dla Zakładu Ubezpieczeń Społecznych): The aim of this system is to process the pension information of all citizens of Poland. The system focuses on pension reform, with a multi-channel, secure system for filing pension information that involved citizen-to-government, business-to-government, and allows intermediaries to work on behalf of citizens and businesses (20 million insured). The project cost over EUR 459 million (PLN 1.8 billion).[58] Over 260 million documents are processed each year with 90% of them involving eFiling. The annual maintenance costs of the system amount EUR 66 million (PLN 266 million).[59] The project was announced winner of the eEurope Awards for eGovernment - 2005.

Other selected eGovernment services:

Other interesting eGovernment applications include Internet Legal Information System (Internetowy System Informacji Prawnej) (Polish Parliament 2006). The system is available free of charge and provides access to texts of statutes and ordinances. A valuable feature of the system is that it provides consolidated versions of all legal texts.

The first Internet court portal was opened in 16 August 2006 in Wroclaw.[60] The portal enables (also in English) to find the trial date, to order a reminder e-mail about the trial date. In the court, over 50 monitors have been installed informing about the current status of the trial. The introduction of the portal is a pilot of the project called "The court of the XXI century ("Sąd XXI wieku") accepted by the Ministry of Justice as part of the Assisting System of Organizing Trails (System Wspomagania Organizacji Rozpraw - SWOR). The judges also have a "court expert portal", there is information about court experts availability (Rzeczpospolita of 21 August 2006).

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[58] The money was spent on infrastructure (EUR 250 million (PLN 1 billion)), programming (EUR 137 million (PLN 550 million)), security system (EUR 17 million (PLN 70 million)) and eSignature toll (EUR 10 million (PLN 40 million)) (Rzeczpospolita of 15 April 2006).

[59] The annual maintenance costs are: EUR 35 million (PLN 141 million) spend for administrating and exploitation of the system, EUR 25 million (PLN 102 million), for the service and costs of adjustments (over nine times during the informatisation process) made to the system (for and EUR 6 million (PLN 23 million) Rzeczpospolita of 15 April 2006).

[60] www.wroclaw.so.gov.pl

There are also four Warsaw districts which implemented an IT toll enabling the administrators to send text messages to citizens informing them about the status of their administrative request. The Praga Północ district sends monthly 500 text messages (Rzeczpospolita of 26 January 2006). This year the taxpayers were allowed to inform the tax office about their e-mail address. Similarly, on the sample of The Identification Forms for Tax Purposes for the first time there has been a space for e-mail address (Journal of Law, No. 254, item 2132). The information is being used to communicate with taxpayers. For the first time, the internet is being used for the transmission of the Warsaw City Council meetings to enable citizens to see the meeting online (Rzeczpospolita of 14 April 2006).

Summarising, there is a lack of centralised eGovernment portals and networks but there are numerous regional or sector-specific applications. There are also certain interesting applications in the area of eHealthcare but they will be discussed below.

eHealth services

Health related services are co-ordinated by the Ministry of Health, i.e. the NHF (Ministry of Health, 2006). The applications are designed primarily for interaction with other healthcare institutions, mainly public ones (G-two-G and G-two-B). Internet services are generally not available to ordinary citizens. The data concerning the waiting time for particular services are available regionally. There are some cases of online registration systems, yet they require the institutions to confirm the registration on the phone.

Below are the most representative examples of eHealth systems developed in Poland that function within the Centre of Healthcare Information Systems mentioned in the previous section. Centre for Healthcare Information Systems is designed for Business-to-Government applications and comprise of the following information systems:

1. **Registry of Healthcare Institutions (2/3):** The purpose of the system is to enable registration of health institutions within a centralised database. It is the first system that makes use of digital signatures. A crucial element of informatisation of eHealth sector (Centre for Healthcare Information Systems, 2006).

2. **Electronic mail system for Healthcare Institutions (ZOZmail) (System Poczty Elektronicznej Zakładów Opieki Zdrowotnej) (1):** Essentially a centralised email system that permits easy communication and localisation of relevant eHealth institution or specific doctor. Enables unified naming convention for email addresses within eHealth sector. Usage data is unknown.

3. **Virtual Map of Regional Heath Care Institutions (Atlas Mapa RZOZ) (1):** A virtual map of the whole of Poland that permits zooming in and out in order to find a relevant healthcare institution.

4. **Integrated Statistical Reporting System MZ 03[61] (System sprawozdania MZ 03) (3):** Mandatory system of reporting statistical information required by law (Journal of Law, No. 195, item 2004). Health institutions have to log in into a website that uses encryption in order to safeguard the transmission of statistical information.

5. **System for Monitoring Consumer Accidents (System Monitorowania Wypadków Konsumenckich) (2/3):** Information system that permits collection of data regarding consumer products that are dangerous. Only selected healthcare institutions are required to provide information about such accidents but most can access it.

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[61] www.csioz.gov.pl/mz03.htm

Other eHealth services

a) **RZOZ**: Registration System of Health Administration Units (System Rejestru Zakladów Opieki Zdrowotnej) is a central database and an information registration system of the Health Administration Units for the dissemination of information about public access to data on possibilities for using the healthcare service. It is as well the first system in the section of the health protection system and one of the first in the whole public administration that uses electronic signature (CSIOZ 2006).

b) **Telemedicine portal**: the Centre of Hearing and Speech in Warsaw, and the Multimedia Systems Department of the Gdansk University of Technology offer an interactive service for diagnosis and rehabilitation of the senses responsible for communication. Each system includes tests and relevant information about senses ("I can hear" The multimedia system of testing your hearing), "Tinnitus" (Diagnosis and information for those suffering from tinnitus and hyperacusis), "I can speak" (Universal System for Testing and Rehabilitation of Speech) and "I can see" (Universal System for Diagnosing Visual Impairments)). The system allows diagnosis and rehabilitation at patients' homes or at schools using a regular PC system.[62] Each system includes tests and relevant information about senses. Systems were conceived and prepared at the International Centre of Hearing and Speech in Warsaw, and the Multimedia Systems Department of the Gdansk University of Technology. The system allows diagnosis and rehabilitation of communication senses at patients' homes or at schools using a regular PC system, for some purposes equipped with additional tools (microphones, speakers calibrators etc.). The main purpose of the service is to conduct epidemiological screening, especially among children. The creators wish to establish the screening centres in every school, especially as more and more primary schools and gymnasiums have access to modern ICT. The data obtained from screenings can be of value when allocating funding to the Polish health system. The processed information from the tests can form the base for the development of preventative measures aimed at sense dysfunctions and, additionally, of early and cheaper treatment. The usefulness of the service is supported by the fact that the service was used in examinations of about 250 000 children. Multimedia programmes (on CDs) were based on the online service. The portal was the first service of its kind in Poland and was awarded in contests by newspapers and other media. It was also nominated for the eEurope Awards for eHealth 2004 (eUser, 2006).

Poland participates in two eTen projects relating to eHealth: Medical Care Continuity (MCC) and Tenalea. The MCC is meant for patients, who would continue recovering at home under the supervision of the hospital after acute care. This kind of telemedicine allows the inclusion of patients thanks to information society technologies. Primary beneficiaries will be elderly persons and patients suffering chronic diseases. The partners include AXA Assistance Poland, Comprehensive Cancer Centre Maria Sklodowska Curie - Memorial Institute Branch and Polish Telecom. The aim of Tenalea is to implement uniform European procedures for patient randomization in clinical trials and make these procedures available as a service on a secure Trans European Network of Clinical Trials Data centres, enabling data managers, doctors and their staff to interactively register patients into randomised clinical trials and obtain a treatment allocation from any device with internet access, including computer, PDA and mobile phones. The Medical University of Gdansk represents Poland. The project starting as of 1 January 2006 include EUROCET, which aim is to establish a common registry for the collection of data on organ, tissue and cell donation and transplantation activities across multiple Member States. The online registry helps medical professionals improve patient care while also bringing about common standards within different regulatory and cultural environments. Polish Transplant Coordinating Centre and Medical University of Warsaw represent Poland. There are several regional level centres and units focused on technology transfer in advanced technologies, covering also the area of eHealth. Activities focused on technology transfer are also integrated in scope of work of Centres of Technology Transfer, Centres of Advanced Technologies and Centres of Excellence established in last years throughout all the country. The issue of technology transfer in health was also the topic of some international project, e.g. PRO-ACCESS (5 Sixth Framework

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[62] www.telewelfare.com

Programme). Examples cover the Krakow Centre of Telemedicine, Centre of Innovation, Technology Transfer and University Development, at Jagiellonian University, Krakow, Centre of Advanced Technology "Akcent-Małopolska ' and Silesian Centre of Advanced Technologies.

The Telemedicine Network in kujawsko-pomorskie voivodship is based on the experience of the European Institute of Telemedicine in Tulusa. The first step was to equip hospitals in Bydgoszcz, Toruń and Włocławek as also Military Clinic Hospital in Bydgoszcz in professional hardware with appropriate software and 20 apparatus TeleEKG to equip ambulances. The Military Clinic Hospital in Bydgoszcz uses a satellite connection to secure medical tele-consultations for the camp hospital in Iraq.

Within the Sixth Framework Programme the Jagiellonska Collegium Medicum is member of an international consortium, involving academic researchers, healthcare organizations and companies, which are involved in a Research and Development project aimed at devising, developing and validating an innovative knowledge based platform of services, able to improve early diagnosis and to make more effective the medical-clinical management of heart diseases within elderly population (Heartfaid). The project, with a total budget of EURO 3,220,115 (EU funding EUR 2,089,759) started on the 1 February 2006 and will last for 3 years. This main aims of the is to develop and provide an innovative technological platform that:
a) integrates biomedical data within electronic health record systems, for easy and ubiquitous access to heterogeneous patients data;
b) provides services for healthcare professionals, including patient telemonitoring, signal and image processing, alert and alarm system;
c) supports clinical decision in the heart failure domain, based on pattern recognition in historical data, knowledge discovery analysis and inferences on patients' clinical data.[63]

Also within the Sixth Framework Programme the Centre for Innovatioins Technology Transfer and University Development (Centrum Innowacji Transferu Technologii i Rozwoju Uniwersytetu-CITTRU) is involved in two eHealth projects:
1) Healthware - (May 2005 - April 2008) aims at establishing Standard and Interoperable Satellite Solution to Deploy Healthcare Services over Wide Areas based on the DVB/RCS technology
2) E-Health ERA - (April 2005 - March 2007) aims at establishing of a European eHealth Research Area.[64]

The CITTRU was established at the beginning of 2003, by the ordinance of HM Rector of the Jagiellonian University and it's aim was and is to promote University knowledge, support innovations and create cooperation with businesses.

c) Register of Medical Services - Programme START

Healthcare information systems are certainly less developed than eGovernment ones. Such systems are inaccessible to ordinary citizens and only few are of relevance to private healthcare companies. Nevertheless in Silesia, the Silesian regional branch of the NHF introduced in 1999 a system of electronic medical services registration. The project has been implemented by ComputerLand.[65] The START project in the Upper Silesian region is genuine due to several reasons. Firstly, it is the biggest and the most expensive so far eHealth initiative in Poland, secondly it has brought over 10% of savings to the regional heath system budget and thirdly, it has increased significantly the efficiency of the heath care system in the region (see Word Annex publication).

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[63] www.heartfaid.org
[64] www.cittru.uj.edu.pl
[65] www.computerland.pl

The total cost of the system was EUR 5.77 million (PLN 22 million). The project covers 4.7 million insured in the Śląski Regional Patient's Fund, who uses Electronic Patient Card. Within the projects over 100 millions medical services annually worth over EUR 1.05 billion (PLN 4 billion) are electronically authorised. The START system enables 5,000 healthcare providers to settle everyday contracts with the NHF electronically. Moreover, 20 millions of recipes prescribed a year are registered electronically (NHF, 2006).

The implementation of the system eliminated trade with personal identification numbers, which made it possible to receive payments for non-existing patients. Due to the system the financial control efficiency of the regional branch has enlarged. Additionally, electronic authorisation helps to prevent abuses, thanks of the preventive function of the system. START allows electronic registration and reimbursement for laddered stationary, ambulance services and medicines. The use of the Electronic Patient Card allows the system to identify the patient and verifies its insurance status

The NHF is not, however, willing to extrapolate the Start system countrywide, mentioning that it lacks some specific informational functions (e.g. it does not allow tracing inhabitation changes). Even though the electronic memory card is much cheaper than the Smart card, they can only store data, not process it like a computer, are typically single-use, disposable cards. The microchip-cards function might be connected with other services provided to the patient (banking, insurance, identification and transportation card).

Since 1995, The Ministry of Health has had many concepts concerning national medical services registration system. The forecast was to have the system introduced by the end of 1997. By that time, 25 million patients were supposed to be covered by the system (Press release of the Social-Political Council of Ministers from 26 March 1997). All Polish regions received over EUR 53.8 million (PLN 205 million) for implementing the registration system based on a booklet of medical services. Each patient would receive a paper booklet in which all the information on treatments made and prescription would be noted (Strug, 2000).

Despite all the advantages of the system, it could not be implemented for several reasons. The stiff resistance of the medical environment, the lack of legal empowerments, and consequent implementation of supplementary organizational reforms was missing (e.g. payment of the service dependent on service quality), as well as lacking a long-term financial perspective (money from the state was only paid out from the budgetary reserves at the end of the year). Moreover the Ministry of Health imposed one software conception for the country in 1996. The chosen company did not have the program developed by that time. It had started developing it. Therefore, the deadlines could change often. For these regions, which were interested in implementing the system, they could not do so, waiting for the software. Those regions against implementation of any electronic Register of Medical Services had an excuse in not doing anything in that matter (Strug, 2000).

On the 16 of February 2006, the Minister of Health together with the president of the National Health Fund announced that in same communities of Wielkopolska Voivodship inhabited by 100 000 people a test run of a new electronic medical service registration service would have started in two counties (leszczyński and obornicki) by April 2006 (Ministry of Health 2006). The pilot project had not been implemented by February 2007. For the year 2007, the National Health Fund has already reserved EUR 14.69 million (PLN 56 million) for the development of the electronic medical registration system (Gazeta Prawna of 22 August 2006).

According to calculations by the Ministry of Health, EUR 656.16 million (PLN 2.5 billion) could be saved with a Register of Medical Services introduction. That equals 8% of total NHF expenses[66]. Since the discussion about the implementation of the RUM system started, Poland has lost more than EUR 11.02 billion (PLN 42 billion). Based on the START system, which covers over 12% of the population, RUM could be implemented in Poland within half of the necessary time.

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[66]   polishmarket.com/next.php?id=10564

Poland has a large number of portals, which provide general health information, but there are hardly any sites where health-related administrative services or transactions can be carried out. Indeed, eHealth services are arguably the least developed online services in Poland (CapGemini Poland 2004).

II.5.1. The differences in eGovernment services provided to households, business and government sectors

It should be made clear that the most important eGovernment services are not available to ordinary citizens but to businesses. Although citizens are theoretically being offered more services, the most important services are being developed for business first. For instance only businesses can use the Social Security system such as Płatnik, Customs Gateway CELINA or the recently launched tax system eDeklaracje. Also, basically all of the major healthcare information systems were designed to enable inter-organisational integration of information flows.

Such an approach is justified by the fact that businesses need to report public information more often in different areas than ordinary citizens. But, the provision of services to households is growing thanks in particular to the success of Public Information Bulletin and regional information gateways. Furthermore, domestic recipients are definitely favoured in comparison to foreign parties. It is mainly due to the lack of resources necessary to translate services into a foreign language. This situation has not improved since the very beginning of the start of the implementation of eGovernment and eHealth services in Poland. It is unlikely that it is going to improve in the near future.

However, with respect to less demanding applications such as obtaining certain permits, driver licenses, the services that are offered over the Internet are equally accessible to various stakeholders. Individual users can make use of publicly accessible services such as Public Information Bulletin, Parliamentary database of legal acts but also enrol into most of private or public universities and start a business in some major cities.

II. 5.2. The extent of the provision of eGovernment and eHealth services

Even without a detailed analysis of data, it is clear that one-way services are far more widespread than two-way services. Since the introduction of two-way services requires much more sophisticated software infrastructure and better organization of governmental information flows, the introduction of such services has been rather slow. It is visible both in the area of eGovernment and eHealth where households or business users can usually only download certain documents or send applications, but this kind of activity only triggers the whole administrative machine that processes the application in a traditional manner.

On the one hand, the public electronic services are in the early stage of development, which is characterised by the disintegrated process of its development. One can speak of bottom-up development, which is supposed to be integrated under a later stage under the umbrella of the information systems project known as ePUAP. On the other hand, healthcare applications are to some extent integrated institutionally and technically thanks to the Centre for Healthcare Information Systems, which performs the role of central administrator. Integration of these services is easier due to sectoral character of these applications.

II.6. The systems, solutions and problems with eGovernment and eHealth services

II.6.1. The major problems and solutions the existing eGovernment and eHealth applications

The poor adoption of electronic signatures particularly by ordinary citizens is one of the major problems. Since the legal framework for eGovernment services requires the usage of qualified digital certificates, poor adoption rates makes the development of public eServices virtually impossible. One of the main reasons for the lack of adoption of advanced electronic signatures is the high cost of qualified digital certificates. Another reason, is the lack of potential benefits that an ordinary citizen sees in such certificates. The general perception suggests that does not make much sense to purchase qualified digital certificate if nobody, not even public administration makes use of it.

Another major obstacle is the poorly developed technical infrastructure. Only a small percentage of the society has broadband access to the Internet, which makes it very difficult to promote the idea of electronic administration. It is probably fair to say that without broadband access ordinary citizens will rarely if ever use eGovernment or eHealth applications, because it is simply more cost effective and more reliable to use the telephone.

In order to increase the level of expertise and trust for public electronic services, the government would have to popularise advanced electronic signatures. To address this issue, the Multifunctional Personal Document - an intelligent smart card is being considered by the Ministry of Internal Affairs and Administration as a replacement for the current plastic ID card. The electronic ID would base on the existing identification numbers and reference databases (PESEL for individuals and REGON for business). Furthermore, the application providers of major public information systems continues to upgrade their products and educate users. But clearly a more active approach of the major stakeholders, particularly the government, is necessary in order to resolve the above mentioned problems.

At this stage, it is very difficult to speak of any reforms to front office or back office applications. Many applications such as Wrota Małopolski or Wrota Opolszczyzny grow bottom-up rather than in a top-down manner. Hence, the integration and resulting changes to the back office are yet to be seen. With respect to the front office, the applications are subject to be improved especially with respect to provision of services to people with disabilities.

In general, the development of eGovernment and eHealth services in Poland requires good coordination not only at the central level but also between the administration levels. The improvement of management, particularly greater commitment on the side of decision-makers is a key to faster development of centralised eGovernment networks such as STAP or applications such as ePUAP. The government also has to ensure that open standards for interoperability are respected.

II.6.3. The front office and back office reforms related to eGovernment and eHealth services

At this stage, it is very difficult to speak of the current state of reforms concerning front office or back office applications. The key to the development of back office infrastructure for centralised eGovernment services is STAP network that will link all public administration offices and provide a certain value added services such as authentication and electronic signatures. However, it is very unclear when it is going to be completed as public documents do not provide any specific information. Hence, the integration and resulting changes to the back office are yet to be seen.

With respect to the front office, it is also very hard to judge the current state of development of ePUAP application, which is supposed to offer individuals and businesses access through a central portal to all major public information systems. ePUAP requires STAP network first, therefore it is crucial that

STAP network is built first. As far as other front office applications are concerned, the Public Information Bulletin will undergo some reforms. Furthermore, few basic "www" applications are continued to be improved especially with respect to the provision of services to people with disabilities (for instance, certain ministerial websites). This area requires further research and is still underway.

The observation shows that at this stage the stakeholders are hardly capable to simultaneously reshape the front and back office applications for public units. It is due to the fact that the process of countrywide integration of various public information systems is still underway.

II.7. The acceptance and usage of technologies and services by the different actors

II.7.1. The major penetration, usage indicators relevant to assess the use of eGovernment and eHealth by major actors

According to eUser data for 2006, almost 65.4% of all respondents had contact with the Public Administration in the last 12 months. In terms of intentions to use different levels of eGovernment services, the survey showed that potential demand is the highest in the case of general online information search services (with 85.5%). Communication services (supply information online. e.g. submit) with 81.9% come as the second highest demand. The need to seek advice from agency staff by e-mail or online (communication service) has been demonstrated by 73.5% of the surveyed persons. Transaction service (payments online) would be a service used by 59.9% and finally the opportunity to sign documents online using digital signature would be used by 54.6% (eUser, 2006).

The respondents have mentioned several barriers to eGovernment in Poland. Over 60% anticipated that beside the online contact there is still need to go to the office in order to sign the papers and to complete the necessary form and advice from the staff is needed. Almost 45% had concern about supplying personal data online (eUser, 2006).

According to Eurostat data, the percentage of individuals who use the Internet for downloading official forms was 5.6% in 2004, which is significantly below the average level for EU15 and EU25 (Word Annex 19).

According to the survey of the Central Statistical Office 2005, the proportion of enterprises using internet to contact public administration had increased in the subsequent years 2004 and 2005. The share of enterprises, which used Internet to download the form, sent filled forms and settled administrative matters amounted to 47%, 31% and 16% respectively in 2005 (Central Statistical Office 2005) (Word Annex 20).

The more detailed structure of the internet penetration in Poland in 2005 showed that 54% of women and 42% of men participated in computer training in the last 12 months. Almost half (49%) of the surveyed people never used a computer and 63% of them have no internet experience at all. Only 48% who used the computer had sent emails with attachments during that time. More complicated operations had been carried out even more rarely.

Those, who used the internet in the last three months for private purposes, first of all were searching for information and using on-line services (86% of persons surveyed) and for communication purposes (83%). Three-quarters (76%) used it to look for information related to their hobbies and interests; interaction with public authorities via the internet was reported by 44% of the respondents. Only 23% used the internet for any commercial purposes or for using financial services (including internet banking), and 15% for training and education. (Word Annex 21)

Only 4.69% of responded people use the internet every day for searching health information regarding injury, diseases, nourishment, prophylaxis and other reasons. Over 41% of those who were asked the question have never searched for such information via the internet (Table 15).

Table 15. Search for health information in the internet (on injury, diseases, nourishment, prophylaxis) in %

Every day or almost every day	Once a week	Once a months	Less often	Don't use
4.69	8.82	17.97	27.31	41.2

Source: M. Kraska, Elektroniczna gospodarka w Polsce, Raport 2004, Poznań 2005

More than 92% have never had registered their doctor's visit with the help with an online registration form. Only 8% persons surveyed used the internet to make a medical appointment. It has to be underlined that such a low performance is due the fact, that mostly only private medical service providers provide such a service. The same result could be observed by the online request for a prescription. Nevertheless, there were also more than 10% of surveyed persons, who have ever consulted a doctor online.

There are also big differences of internet usage within the country. The highest with the Mazowiecki voivodship with a 20% share and Swiętokszyskie region with as little as 0.8% share of the country (Graph 4).

Graph 4. Voivodships with the highest user amount (2002-2006)
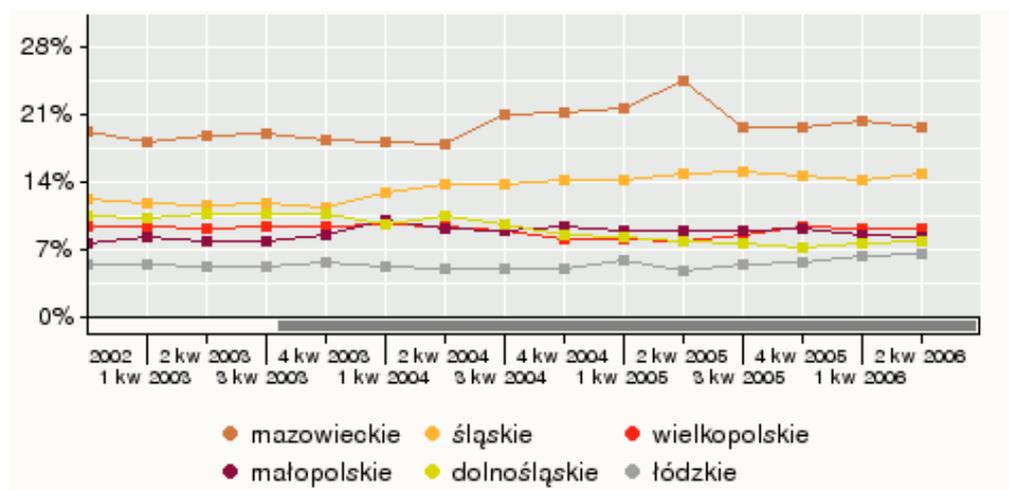
Source: www.ranking.pl, 2006

According to a survey conducted by PROMOtest on 1 008 doctors in July 2005 76% of Polish doctors use Internet (in comparison to 28% of Polish citizen). Almost 50% of the questioned doctors use Internet more than few times a week (Macheta, Łukasz, of 18 October 2005) (Table 16).

Table 16. The use of the Internet by Polish doctors in 2005 in %

Few times a week	Once time a week	More seldom than once a week	Once a months	Don't use
50	12	9	5	24

Source: www.mediarun.pl, 2006

In the virtual world, there are almost 30 Polish medical thematic web pages. The most used webpage medical publications were offered bye Medline (www.mp.pl) with 36% respondents and portal Esculap (www.esculap.pl) mentioned by 36% doctors (Macheta 2005).

Among doctors, a large differentiation in using medical services ion the Internet could be observed. Most active are gastrologists (69%) and cardiologists (50%), the least active medical group appeared gynecologists (21%) (Macheta 2005).

By the end of 2005, there were over 17 million bank accounts in Poland. Almost 30% of bank account users were using eBanking. The reason for the fast growth of eBanking, in some cases even by 500%, was due to the financial advantages in comparison to the ordinary way (e.g. bank transfers).

II.7.2. The demand for and sophistication of eGovernment and eHealth services

The level of online sophistication of eServices[67] in 2006 amounted to 53%, where 20% of the them were fully available on-line, where the global European level of online sophistication amounted to 65% (the total number of basic public services that were fully available online equals to 100%). More than 50% of the EU countries (except Bulgaria and Romania) exceeded two-way interaction (75%) (CapGemini, 2006).

More specifically, the interaction with public authorities via the Internet in Poland was reported by 11% of the respondents. Only 6% used the Internet for downloading forms, whereas only 3% downloaded and returned the form to the public administration. Among companies, a comparison of 2004 and 2005 reveals the 5% drop in ratio of Internet usage for public information (Central Statistical Office 2005).

More than half of surveyed companies used the Internet for obtaining public information, 47% for downloading and 60% returning forms (i.e. social premium). An international comparison shows the significant differences the level of sophistication of public services between Poland and other European countries, the above level for the EU25 amounted to 68%, whereas in Poland this percentage was 35% GapGemini 2005 (Word Annex 22).

The indicator of eGovernment Readiness, measured by the United Nations Index[68] shows that Poland in eReadiness ranking moved form the place 32nd place in 2005 to 34th in 2006, in 10-degree scale Poland reached 5.76 points (Word Annex 23).

The survey on eHealth services conducted by the former Ministry of Science and Informatisation and Cap Gemini showed that only 11% of eHealth services were accessible online (2004). There is a very strong demand for eHealth services but supply by public and private institutions or specialist are very low. According to a study prepared by McKinsey & Company for the Office of Scientific Research Committee, making appointments with a doctor online is a service for which demand is high, and which could be implemented easily. About 90% respondents pointed out that this service as very important and about 40% stated that this service should be provided via the Internet firstly before any other service. The cost of such a project was estimated for about 150 million PLN (about 39.4 million Euro) (CapGemini 2004).

Portal www.telewelfare.com, was the one of 32 applications nominated among 109 submitted for eEurope Awards for eHealth in 2004, in Cork, Ireland. The portal www.telewelfare.com created at the

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[67] The sophistication level refers to the different degrees of sophistication of online public services going from 'basic' information provision over one way and two way interaction to 'full' electronic case handling, CapGemini, 2006).

[68] UN eGovernment Readiness Index = combined index of Web Measure Index, Telecommunication Infrastructure Index, Human Capital Index. Web Measure = measures state provided services online, presence of services available, Telecommunication Infrastructure Index = PC and Internet penetration, Human Capital Index = composite of adult literacy rate and gross enrolment ratio. Source: United Nations, Department of Economic and Social Affairs (2003): World Public Sector Report 2003. New York

Institute of Physiology and Pathology of Hearing in collaboration with the Multimedia Systems Department of Gdańsk University of Technology was one of the nominees.

The project, a multimedia system for hearing, tinnitus, speech and vision screening, available also in English, was one of the 7 finalists in the interactive systems category. The project was recognised with a diploma handed during the final session of the conference. This system is international patent pending in 49 countries.[69] Here, users have the possibility to do online consultations, participate in videoconferences and take part in eLearning courses.

II.8. The impacts of eGovernment and eHealth developments on the public sector, on the healthcare systems and on Information Society

II.8.1. Assessments of eGovernment and eHealth impact on public administration and healthcare sector

There are no reports or analysis made on assessing the impacts of eService developments. Nevertheless, implementation of eAuction for public administration brought average savings of 19.67% in comparison to a normal procurement procedure.[70] Moreover according to calculations of the Ministry of Health, EUR 656.16 million (PLN 2.5 billion) could be saved with Register of Medical Services introduction. That equals 8% of total average annual NHF expenses.[71] The implementation of the RUM would also save time eliminating the procedure of insurance status proof. Only in Silesia such a RUM system was introduced (START). Taking into consideration, that EUR 1.15 billion (PLN 4.4 billion) is the annual budget of the Silesian branch of the National Health Fund. The branch saves each year around EUR 105 million (400 million PLN). Although, the effect of the START project in the healthcare sector is limited to one region covering less than 13% of the total population, one of the most significant impacts is that the patient, thanks to the electronic patient's card, does not need to prove his/her insurance status every month.

According to a survey by the consulting company McKinsey, the eAdministration is not only a comfort for citizens, but also, it is an asset for the administration due the establishment of integrated, internal systems of information and documents flow. It allows cutting costs and saving taxpayers money. The company estimates that only the implementation of eTaxation could save more than 68 000 of man-hours annually in Poland. The implementation of eGovernment and eHealth structures would save 382 thousands of men-hours annually. Even if only 1% of the citizens and 5% of business uses these utilities at the beginning, the total savings would reach EUR 0.46 million (PLN 1.78 million) each year (Salik 2003).

The expected positive contribution of eGovernment and eHealth might result also from greater user orientation of public administration and healthcare sectors. Yet, most emphasis of ePoland Strategy is on bringing citizens online. The Strategy on the Development of the Information Society in Poland for the years 2004-2006, focused on affordable, safe and universal access to the Internet, i.e. through schools and PIAPs (Word Annex 24). Access/availability and affordability are keywords, and some actions are being taken in this field (e.g. the Icon project which will create about 2,500 PIAPs in Poland).

Some efforts towards more user orientation in online service provision can be observed at the regional and local level. In some voivodships in Poland, the marshal's office provides regional portals that allow citizens and enterprises to deal with any local government of the respective region through online channels, for example in Małopolska: (www.wrotamalopolski.gov.pl). The Małopolska project also has an integrated Public Information Bulletin with universal information on public administration offices and services.[72]

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[69] www.mcsm.pl
[70] www.eng.ppp.pwpw.pl/
[71] www.polishmarket.com/next.php?id=10564
[72] www.wrotamalopolski.gov.pl

The draft eHealth Strategy for Poland for the years 2004-2006 took into account user orientation especially in the field of accessibility. Until 2006, every healthcare institution should have had access to the Internet, and been able to offer internet services for their patients. Furthermore until 2006, interoperability between current and future technological solutions should have been achieved, and The Centre of Information Systems for Healthcare will create a system based on electronic maps, which will show deployment of healthcare institution.

In 2005, a central eHealth portal and information system was created. The latter enabled to monitor the waiting time of patients. The draft strategy does not mention or suggest projects focused on utility, visibility/find ability, flexibility, usability or customisation/personalisation.

II.8.2. Public procurement and PPP solutions for eServices

An important role in the reduction of budgetary spending on the development of priority systems may be played by so-called public-private partnerships (PPP).

The total value of the Polish procurement market was EUR 12.6 billion (PLN 48 billion) in 2004. The main source of information about the organized public procurement calls (22%) was on-line available Public Procurement Bulletin internet portal of the Public Procurement Office In 2004 60% of all procurements were sent to the Public Procurement Office electronically. (In 2002 it was only 35% and in 2003 about 50%.) Over 6,000 institutions, entitled to send their notices about procurement calls electronically, were registered in the Public Procurement Office in the year 2004 (Public Procurement Office, 2005).

In Poland, the Opole City Office was the first public administration unit, which decided on a practical implementation of state-of-the-art online technology for fulfilling public orders. The first electronic auction took place for that city at the end of 2003 in Opole (Gazeta Wyborcza of 16 December 2003).

The main private procurement platform is the Polish Procurement Platform (Platforma Przetargowa w Polskiej Wytwórni Papierów Wartościowych) active on the market since 2003. The Platform takes care of electronic tenders and purchases organization.

The platform offers their products and services not only to entities from the business sector but also for public administration. By the year 2006, the Platform had organized tens of eAuction for public administration. The average savings made by the public administration thanks to the eAuction could reach 19.67%. The highest cost reduction was 65%.[73] The reason for that is, that eAuction allows to have more companies taking part in the bet. The Defence Ministry and one of the self-government units have saved over 30% on computers and the Polish Rail Company saved over EUR 57 742 (PLN 220 000) in comparison to the starting offer (Rzeczpospolita of 29 September 2006).

There are also public administration units creating a shared eProcurement platform. An example could be the Małopolska Voivodship. The eProcurement platform covers 64 local self-government authorities in Małopolska (over 36% counties` offices and over 30% of communities) (Map 5). The system is integrated with the above-mentioned Małopolska Gateway - its Digital Office and Public Information Bulletins.

The amendment of the Public Procurement Law procurement procedure from April 2006 had an impact on the Polish procurement market. The new regulation replaced electronic auction with electronic bidding which broadens the scope of implementation of the act and levels up the ceiling from only EUR 60,000 to more than EUR 137,000 (for public units) and EUR 211,000 for other entities on the one hand.

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[73] www.eng.ppp.pwpw.pl/

Map 5. The eProcurement platform area of Małopolskie region

Source: www.malopolskie.pl, 2005.

On the other hand, the new regulation allows tenders not only generally available supplies but also services. Within three months of the amendment coming into force, there were over 65 thousand eAuctions announced. By the end of the 2006, there were almost 250 thousand calls (Rzeczpospolita of 29 September 2006). It is also worth mentioning how the polish procurement procedure has a negative impact on the ICT development in Poland. The call for tenders, worth EUR 21.52 million (PLN 82 million) for ICT infrastructure for courts, public prosecutor's office and prisons (over 1,300 localizations) was announced in May 2004 (Rzeczpospolita of 03 February 2006).

The system will allow to have online access to the National Criminal Record system (Krajowy Rejestr Karny-KRS), and will have its own Intranet with the possibility to conduct teleconferences. Due to the complicated appeal procedure (over 5 arbitration committee verdicts, 2 judicial sentences and awards of the Court of Appeal and one award of the Supreme Court) selection procedure could not be finalized in 2006, because of a subsequent appeal (Rzeczpospolita of 03 February 2006).

Opposite to the public procurement procedure, The Polish Act on Public Private Partnership in force since 7 October 2005 was not influenced by eServices (Journal of Law, No. 169, item 1420). Pursuant to the art. 13 all information concerning planned public-private partnerships has to be published simultaneously in the Public Procurement Bulletin and the Public Information Bulletin. Bulletins are available online.

To sum up, electronic services in the public sector in Poland are still in their early stages of development. The first notion on development of eGovernment, as a part of a wider information society strategy was The Resolution on Development of Fundamentals for Information Society in Poland – obliging the government to draft first strategy on the information society (adopted on 28 November 2000). The first notion of eHealth has been reported in ePoland - The Strategy on the Development of Information Society in Poland for the Years 2001-2006. Yet, the strategies within eHealth are usually a part of wider documents on the development of information society in Poland. Nevertheless, the commercial eHealth portals have been growing rapidly. General health information is also provided by many portals.

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

III.1. The current state of eGovernment and eHealth development

III.1.1. The main achievements and shortcomings of eGovernment

Poland, in recent years, has observed a considerable progress in the above mentioned areas. Particularly noteworthy is the fast expansion of eServices. The level of online sophistication of eServices in 2004 amounted to 35%, while only 10% of the them were fully available on-line. In the course of two years, the consequent survey in 2006 showed that Poland noted a sound improvement in the delivery of eServices, surpassing the pace of the EU10 and EU28.[74] The on-line sophistication in 2006 reached the level of 53%, while full availability grew to 20% meaning an improvement of 100% in two subsequent years (relative numbers in 2004 amounted to 35% and 10%) (GapGemini, 2006) (Graph 5).

Graph 5. Poland main online sophistication and fully available online
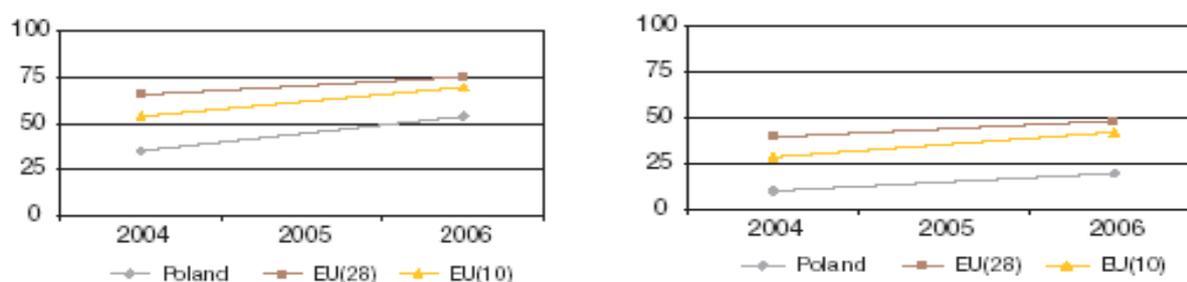
Source: *Online Availability of Public Services: How Is Europe Progressing*, Web Based Survey on Electronic Public Services, Report of the 6th Measurement, Capgemini, June 2006

Main achievements of eGovernment

More specific achievements in eGovernment domain include: **rapid increase in the share of Internet users among the population**, **political priority of eGovernment, the provision of a regulatory framework for the development of eGovernment**, **progress in the number and sophistication of eGovernment services,** e.g. the introduction of the eService of the social premiums KSI ZUS, customs declaration entry processing system CELINA.

Firstly, **there has been rapid increase in the share of Internet users among the population**. The Internet penetration has been on a continual growth, starting from 26% in 2004 and 2005, 30% reaching a level of 34% in 2006 (Central Statistical Office, 2006). The percentage of enterprises with broadband connection has been growing dynamically: 28% (2004) 43% (2005) and 46% (2006). The share of individuals regularly using the Internet has been growing from 22% in 2004 to 29% in 2005 and 34% in 2006 (Eurostat 2007)[75] (see also II.7)

Secondly, since 2001 Polish government has been adopting many strategies and action plans aiming at implementing eGovernment in Poland, both at the central and regional level (see II. 2), starting from the establishment of the ePoland Action Plan toward Information Society Development in Poland for the years 2001-2006.In September 2001, eGovernment had been one of the major policy priorities for the Polish government. In April 2003, the eGovernment document Wrota Polski ('Gateway to Poland') set up the integrated platform for the provision of public services online. Most

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[74]   EU28 - European Union with 25 Member States and Island, Norway and Switzerland
[75]   Percentage of individuals who accessed the Internet, on average, at least once a week.

recently, on 4 September 2006, the Regional Parliament of the Mazowieckie Voivodship became the first in Poland to adopt The Strategy for Regional eDevelopment of the Mazovia Region 2007-2013.

Thirdly, **Poland has rich regulatory framework for the development of eGovernment**. The most important aspects of eGovernment are covered in the following legislative acts: Act on Providing Services by Electronic Means (July 2002), Act on the Protection of Certain Services (July 2002), Act on Electronic Signatures (September 2001), The Act on Access to Public Information in (September 2001), The Act on Informatisation of Entities Providing Public Acts and Law on Public Procurement (January 2004) as well as The Law on Public Procurement (for details see II.3).

Fourthly, during the last few years, Poland has made significant **progress in the number and sophistication of eGovernment services** available in the Internet. The Complex Information System of the Social Security Agency (KSI ZUS) is one of the Polish eGovernment achievements. The KSI ZUS allows the online filling in of pension information (eFiling) with concurrent involvement of intermediaries acting on behalf of citizens and businesses. Despite being a relatively new service, KSI ZUS has a high impact on dependent agencies, employers and insured people. Furthermore, the service was claimed to have a high potential of being transferred to other sectors and countries. (Eipa, 2005).The success of eService might be attributed to the provision of a legal framework enforcing the eFilling of premiums. eService of the social premiums KSI ZUS was a winner of the eGovernment Award 2005 (category: right environment) at the European eGovernment Conference in Manchester.

A customs declaration entry processing system CELINA - supporting communication between businesses and Customs Administration - is another good example of eGovernment services in Poland. The system provides fully electronic custom procedure and enables the submission of electronic declarations. It is nominated for the European eGovernment Awards at the Como Conference in July 2003 (see more in II.5).

Main shortcomings of eGovernment

Although Poland represents an impressive pace regarding the development of eServices, the overall degree of advancement remains unsatisfactory and well below the EU15 and EU10 average. The statistical Pole cannot file his tax declaration on-line, use an eSignature in his contacts with public administration, vote over the Internet or apply for passport, ID or driving licence on-line. Thus, the main shortcomings in the eGovernment domain in Poland include: **the insufficient ICT skills and low awareness of eServices, low spending on eGovernment, low efficiency of eGovernment policies, lack of coordination of eGovernment services, the lack of recognition of eGovernment as broader public administration reform, the lack of interoperability of public information systems and low level of private sector participation in the support of provision of public services.**

The overall **level of ICT skills and awareness of eServices are still low**. The latter apply to the means that a user must have in order to use eServices (use of computers and networks). The former refers to the users awareness of the benefits resulting from using of eServices. A similar, situation has occurred in the eHealth domain (see below).

The ICT policy is rather low in the political agenda as the linkage between public administration, eGovenment and efficiency and effectiveness are not widely recognised. The overall level of public spending on **eGovernment expenditure per capita remains the lowest within the EU25**, the ICT spending per capita is also limited (eGEP, 2006). Former policy documents were not supported by financial resources and an appropriate coordination structure, which contributed to the low level of its implementation. There is also **a lack of centralised eGovernment portal and network applications**. Furthermore, **eGovernment does not constitute a part of a wider public administration reform** so the back-office reorganisation although progressing, remains at a low level.

Moreover, **the lack of interoperability of public information systems** hampers the process of provision of public online services, both in healthcare and public administration sectors. The information systems carry out tasks under the competence of particular offices, most often the systems

are isolated from other systems. The majority of these system have separate access infrastructure, own standards and interfaces. The used applications are being duplicated although they should be common for the whole public administration.

Participation of private sector in the support of provision of public services is scarce. There are, however some single examples of private sector participation, i.e. eSlupsk, n@utobus the wireless Internet bus, eStoszowice, but these initiatives are considered to be rather "good practices" than a blueprint for widespread future actions.

III.1.2. The main achievements and shortcomings of eHealth

Main achievements of eHealth

Poland is in its early stage of eHealth services development. There has been a significant progress in the last few years in development of ICT infrastructure in the country. Poland has a large number of portals, which provide general health information. However only 62% of users used the Internet as a source of health-related information and 40% looked for such knowledge on-line or asked relatives to look on their behalf at least once a month or more frequently (43%). The above mentioned data indicate the low level of awareness of eHealth services but, on the other hand, increasing interest in considering the Internet as a source of medical information (TNS OBOP, 2006).

More specific achievements in eHealth include: **relatively well developed ICT infrastructure, the first eHealth regional strategy, the increasing number of eHealth pilot projects, increasing number of eHealth commercial portals, plans of the electronic patient card for every citizen.**

Although the development of eHealth is relatively slow in Poland, there are some projects which should be looked at more closely. The region of Lodz started to develop **eHealth strategy for the years 2007-2013**, which is a first initiative of this kind in Poland. By April 2007, the list of eServices for implementation is to be developed. The implementation of the strategy will be supported by the structural funds, via Regional Operational Programme for the Years 2007-2013.

The START project in Silesia region represents a successful, large-scale implementation of electronic service record system. Within the projects, over 100 millions medical services annually worth over EUR 1.05 billion (4 billion PLN) are electronically authorized. The START system enables 5,000 healthcare providers to settle everyday contracts with the National Health Fund electronically. Moreover, 20 millions of recipes prescribed a year are registered electronically. In 2001, there were 5 million cards issued, enabling patients to access their data and authorise the medical procedures. The project proved the efficiency of the system, so that other regions now attempt to imitate this solution (see also II.5).

Poland has many commercial eHealth portals, where patients can find information about intimate life, psychology, healthy lifestyles and so on (see II.1.3). One of the relatively successful eHealth portals is www.mcsm.pl, provided by International Centre of Hearing and Speech. The Centre has been awarded for many times: for the best multimedia product (Stockholm Challenge Award 2000), Nominee Certificate to the award of European Multimedia Oscar for the best multimedia product, Leader of Informatics 2001 in the category of Public Organizations, awarded for the innovative worldwide use of computer potential in healthcare, Gold Medal of 2001 Innovations in the category of "Electronics and Informatics" for the Institute of Physiology and Pathology of Hearing for the universal system for diagnostics of vision defects, diagnostics and rehabilitation of hearing and speech.

Finally, **The Centre of Information Systems of Healthcare plans to launch an electronic patient card**, linking up to an integrated electronic system, to replace the traditional paper files kept separately in each medical centre by the end of 2007 (see II.5).

Main shortcomings of eHealth

Despite the increasing number of eHealth related services and regional initiatives, the eHealth domain has not been fully exploited in Poland. The main shortcomings results from: **the lack of national strategy for eHealth, the scarcity of presence of eServices related to health issues, in satisfactory advancement of the ICT infrastructure, the lack of a broader perspective of eHealth applications.**

Although the first notion of eHealth started to appear in general policy documents relevant for an information society as early as 2000, **Poland still does not have the national strategy for eHealth,** regardless of the previous commitments and the EU recommendation. The draft of The eHealth Strategy for Poland for the Years 2004-2006 developed in 2004 by the Centre for Information Systems for Healthcare has never been formally adopted constituting an internal document of the Ministry of Health. The political support for eHealth has been weak so far.

There are no specific policies or regulations that encourage online or telephone medical consultations. One of the very rare services is the portal www.mcsm.pl. eHealth is a part of public information society policy that has not received appropriate attention during the last year. **There is a scarcity of presence of eServices related to health issues i.e. eRegistration, eRefferals or ePrescription**, although there are some good practices available e.g. the START project in the Silesia region. Although the Centre of Information Systems in Healthcare regularly conducts statically analysis of the level and advancement of technological equipment in hospitals, the survey up till now has not included the data on computer and Internet availability in healthcare.

The level of advancement of the ICT infrastructure remains unsatisfactory which is the result of the high level of debts of the healthcare system and a generally dire financial situation. There is neither statistical information on the penetration of computers, availability of eServices and other ICT related issues on the national or regional level available, nor direct funding to boost the ICT investment. Although the level of knowledge on eHealth applications among medical personnel is satisfactory, most of the applications are used mainly for management purpose and improving the information flow within a single institution, thus **lacking in a broader perspective of eHealth applications.**

III.2. Major factors affecting the evolution of the eGovernment and eHealth

Economic Factors: macro- and microeconomic environment

The European Union enlargement in May 2004 gave an important boost to the Polish economy. At present Poland is enjoying a combination of strong and balanced growth, low inflation, rising employment, and a small current account deficit.[76]

The current favourable macroeconomic environment on one hand, has been achieved partly due to growing ICT investments, while in turn, stable economic growth has been leading to further investments into ICT related sectors and eServices.

During the recent decade, the rate of economic growth was closely correlated with both public and private investment in ICT, R&D and innovation. In the last decade, ICT investments have typically produced an annual GDP growth of between 0.3 and 0.8% (OECD 2005). This was a significant contribution to the overall economic growth and development of new application of ICT (e.g. eGovernment and eHealth).

Stable economic growth is a prerequisite to resolving current problems of a large budget deficit and a relatively high public debt to GDP ratio of over 50% (2006). General government debt is not

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[76] Republic of Poland - Concluding Statement of the 2006 Article IV Consultation Mission, May 22, 2006
     www.imf.org

excessively high but it is increasing. The latter trend might impose spending restraint not only in the state budget but also in the broader public sector, which would effect negatively eGovernment and eHealth expenditure.

Faster GDP growth creates a solid basis for strategic investment decisions in the area of ICT and eServices by both business and public sectors. High economic growth has also proved to substantially enhance the attractiveness of Poland for foreign investors, prevent large emigration, including IT specialists, and increase state spending on education, infrastructure, and modernisation of public administration (Piatkowski, 2004). After the accession to the EU, more and more IT companies started to become interested in the Polish market. They have brought along their corporate IT habits, preferences as well as further pressures on the development of eServices.

Starting in 2004, the budgetary policy has been rather inconsistent followed by an unexpectedly large improvement in 2005 and uncertain prospects for 2006. The latter might have a negative impact on further development of eGovernment and eHealth initiatives. One of the reasons of the uncertain budgetary policy is the relative political instability caused by the establishment of a new government (2006). A positive trend can be observed in the public expenditure structure, where *Lisbon challenges related to eEurope and knowledge-based economy* have become one of the spending priorities.

The increasing investments into the healthcare sector will be one of the key challenges for the Polish government, while costly new treatments and an ageing population exert further pressures on the budget (Creating an Innovative Europe 2006). It is expected that EU funds will contribute to improving public infrastructure and support economic policy in eHealth and eGovernment domains (Creating an Innovative Europe 2006) .

Legal factors

Poland has introduced a rather comprehensive framework for eGovernment and eHealth services in the European Union. This provides a necessary legal background for possible initiatives on central and regional level (see Chapter II.3). The main legal acts include:

a) The Act on Access to Public Information,

b) The Law on Protection of Personal Data,

c) The Act on Electronic Signatures,

d) The Ordinance on Issuing and Submission of Invoices in Electronic Form,

e) Procedures on Storage and Availability to the Tax Institutions,

f) The Act on Informatisation of Entities Providing Public Acts,

g) The Ordinance on Organizational and Technical Conditions for Submission Electronic Documents to Public Bodies,

h) The Act on Informatisation of Entities Providing Public Acts,

i) The Law on Public Procurement.

The legal framework among other things:

a) forced the public institutions to create an electronic Public Information Bulletin (storage and access of public information),

b) obligates all involved institutions to protect personal data (strict rules governing the collection, access, correction, exchange or deletion of personal data),

c) enforces the public institutions to accept electronic signature (rules on providing certification services, over entities providing services),

d) allows the business to issue electronic invoices (acceptance, storage and control),

e) establishes minimal technical requirements for computerization of public bodies as well as rules particularly for Government-to-Government (G-two-G) information exchange,

f) sets up minimal standards for public information systems, public registries and exchange of information in public sector,

g) obliges all public bodies including public healthcare institutions to enable electronic communication with other public institutions,

h) conditions for submission of electronic documents to public institutions,

i) sets out the organizational framework for submission of electronic documents,

j) establishes rules on the control of the implementation of public information systems,

k) established a countrywide National Registry of Information Systems and Public Registers (contains data about all public information systems and public registers (whether computerized or not).

Although Polish law implemented so far contains quite an extensive body of useful rules dealing with eGovernment and eHealth, it is important to stress that rules relating to interactions between government and citizens (G-two-C) as well as government and businesses (G-two-B) are not fully developed yet.

Apart from the laws described above, there are numerous legal acts that regulate specific aspects of eGovernment (the area of eHealth does not contain such specific rules). Examples include The Act on Publishing Normative Acts and Other Legal or The Act on Road Traffic.

During the two year membership period in the European Union, Poland was able to implement directives on electronic signatures, two directives on public procurement, directive on protection of personal data, directive on the re-use of public sector information directive on the protection of privacy in electronic communication and other directives from the telecommunication package and so on. Therefore, Poland contributed to the creation of a harmonised framework for eServices within the EU.

The Ethical Factor

Ethical factors of eGovernment and eHealth services have not been considered to be an important issue by the Polish government. There is no specific regulation for the ethics referring to eGovernment and eHealth. In order to set procedural standards that should be followed by civil servants and civil service employees and assist them in the proper satisfaction of those standards, in accordance with societal and citizen's expectations; and taking into consideration the Recommendation of the Council of Ministers of the Council of Europe No. R/2000/10, the Civil Service Code of Ethics was introduced in October 2002. The Article 4 of the Code says: he/she shall respect the citizens' right to information, having in mind the transparency of public administration, while preserving the confidentiality of information protected by law. It should be noted that the right to information, also guaranteed in the Constitution of Poland, is at the basis of deployment of public services, and its electronic version.

The Technological Factor

Poland puts an important emphasis on the technical education of its youth. **There are more than 30 technical universities throughout the country.** The largest academic school of technology in Poland, employing 2000 professors is Warsaw University of Technology (established in 1826). There are 17 faculties covering various fields of science and technology. Some other prestigious universities offering technical studies are: Bialystok Technical University, College of Science in Warsaw , Cracow University of Technology, Czestochowa Technical University, Franco-Polish School of New ICT, Gdansk Technical University , Kielce Technical University, Koszalin Technical University, Lodz Technical University, Lublin Technical University, Opole Technical University, Politechnika Opolska Technical University, Politechnika Poznanska, Politechnika Szczeciñska, Poznan Technical University, Radom Technical University, Rzeszow Technical University, Silesian Technical University, Stanislaw Staszic University of Mining And Metallurgy, Warsaw University of Technology, Wroclaw Technical University and Zielona Gora Technical University. The annual

number of ICT-related domain graduates account to 40,000. Some 300 Polish IT engineers are employed at the Silicon Valley (2006)(www.paiz.gov.pl).

Poland also invests in the development and diffusion of ICT through its many technical universities. Poland has many competence and technology ICT centres. Their R&D activity is related to the development of systems and tools for knowledge processing and knowledge transfer as well as the application of IT solutions in the biotechnology and medicine (e.g. **Centre of Advanced ICT for Enterprises**, **Centre for Advanced Information Technologies, AERONET Aviation Valley, Western Pomeranian Centre for Advanced Technology**) (www.fistera.jrc.es/docs/Poland). The Centre for Advanced Information Technologies conducts the coordination and maintenance works of Polish Optical Internet Network PIONIER, grid computing, middleware (see II 1.2. and II.4.1.).

Some ICT teaching and research activities are offered by some private institutions such as the **Polish Information Processing** (PTI), The **Association for Image Processing**, **Centre for Decision Science and Forecasting.** The main source of private research funds in Poland is the **Foundation for Polish Science.** The biggest among the private institutions is PTI, which objective is to support the scientific and technological activities in all areas of ICT and to perfect its effective use in the national economy. The PTI membership includes approximately 1,200 IT specialists (). It is active in adult IT education by organising courses, conferences, lectures, exhibitions, technology shows, competitions, and through publishing, additionally, the PTI has a record of influencing Polish ICT policies, such as the introduction of computer science as a primary and secondary school subject, in the reviewing of customs tariffs on IT products, in the determination of the strategies for the further development of computer sciences and information technologies in Poland, as well as in the standardisation of legislation. The PTI is a member of the Council of European Professional Information Societies (CEPIS) since1992 (www.fistera.jrc.es/docs/Poland).

There are also **many software companies that are co-operating with universities and public institutions in development of the advanced IT solutions** (e.g. PGS Software, AIS.PL, ASTEC, Computer Associates, ComputerLand SA, DRQ Sp z o.o., Logotec Engineering, Softbank, Prokom Software, Intelitech, Infoservice, Optimus, MKS, Young Digital Poland, Vulcan Media, SoftwareDevelopment.pl, SuperMemo World, Nahlik Soft, Creamsoft, Comarch, e-Pro, Future Processing, etc.).

Socio-cultural factors

One of the factors impeding the development of an information society in Poland is **the lack of knowledge of foreign languages and digital skills**, especially among elderly people. Moreover, in many cases the latter determines the former. The reluctance to employ IT solutions can be observed among the oldest people, living in rural areas, with secondary and primary education, describing their economic situation as bad or average. eGovernment is certainly one of the measures for digital integration of regional, local and global society. The digital skills foster the development of new form of social and cultural skills. It should be noticed that access to ICT is becoming more and more affordable for the general public in Poland.

Moreover, there is a **large regional divide in ICT penetration in Poland**. It is evidenced by large disparities in the number of registered ICT firms in powiats (NUTS 4), the number of cash machines per powiat, the number of web sites in powiat-level public administration, and penetration of fixed and mobile telephony. Eastern and central southern Poland substantially lags behind the other parts of the country. The large divide in **ICT penetration mostly reflects the urban-rural divide**: most urbanised regions report higher penetration rates and vice versa. The biggest opportunity to close of the digital divide will be related to the impact of the EU structural funds, which will be mostly available for the poorest, rural regions of Poland (Piatkowski, 2004).

According to the survey of the Central Statistical Office, the ratio of people, who have at some point participated in **IT training increased by 10% in regards to 2004 and amounted to 31% in 2006**

(Central Statistical Office, 2006) . It means that **there were 3 million citizens who levelled up their IT skills**. For educational purposes, the Internet has been used by one fifth of the surveyed companies. Unsurprisingly, the highest level of the usage of ICT for upgrading skills was noted in the IT sector.

A number of non-governmental organisations have been active in offering the information technology programmes for women in Poland (e.g. The Stefan Batory Foundation, Kobiety Online, the Network of East-West Women's (www.neww.org) NEWW Online, Women's Rights Centre, OSKA, EFKA), which have contributed to female digital skills and increased Polish digital integration.

In 2004, IT trainings were conducted in 14.6% of all of the public administration offices surveyed (on the level of: marshal office - 25%, province - 60%, central administration - 54.2%, district - 23.7%, community - 11.6%) (The level of computerisation of the public offices in Poland, 2006). The disparity in IT trainings within the regions might indicate that the awareness of **the need of raising IT skills is more important on the regional than local level**.

In the case of eHealth services it is generally observed there is little or no support on the part of the medical environment. Moreover, there is even resistance of reforms, because the system will make public spending more visible and the so-called grey zone may disappear. In the last few years, the **Polish healthcare system has been observing an almost unchangeable level of corruption**. For the first time since 2000, when the Batory Foundation [1] started the project "Barometer on corruption" the healthcare sector became life sphere, in which, in the opinion of surveyed people, the corruption appears most often in Poland.

Both public and private sectors as management staff seems to be rather unprepared to the process of informatisation. The management staff of the office tends to send all that relates to computers to the back IT office. Managers do not understand that computer science is the new manner of handling services of administration and it is they, who must embody them. However, one of the consequences of the accession to the EU and participation in globalisation will be the effect of the further opening of Polish society, increasing homogenisation of tastes and lifestyles, increasing the technological consciousness and labour quality (as a result of internal and external competitive pressures) and a converging of lifestyles and patterns of spending, which will have a positive impact on eServices development.

Demographic factors

The ageing population makes the productivity challenge more urgent. Europe is caught in a demographic squeeze of declining birth rates and rising life expectancies (Creating an Innovative Europe). According to Eurostat, by 2050 the working population will have decreased by 52 million, even after allowing for net migration, and there will be a sharply rising dependency ratio, with the proportion of people over 65 rising from 16.4% in 2004 to 29.9% in 2050. In this situation, the present health and welfare systems are not sustainable. Such situation opens up the field for the development of eHealth (i.e. assistive technology) into older people's home and could empower the citizen through eHealth solutions and services. Although the importance of eHealth has been recognized in the previous strategic documents, not much has been gained in this area in Poland. Due to the change of the government and new coalition being recently established, it is difficult to forecast the development of eHealth in Poland, as there are too many unknowns.

In 1970s and 1980s, Central and Eastern Europe has also observed a sharp drop in the number of births, change in the pattern of starting a family and the process of population ageing – a transformation process that started in Western Europe in the mid 60s - occurred in the region only in the 1990s ([1] Priorities and Developmental Directions of Polish Migration Policy). All scenarios lead

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[77] www.batory.org.pl/korupcja/barometr.htm

inescapably to falling population numbers and to the acceleration of their population's ageing process after 2005. The latter trend might generate the growth in demand for eHealth solutions and services.

The number of working-age Poles (aged 15-64) will have grown by 960,000 by 2020. However, the growth will be affected by the growing number of the elderly people, aged 45 and up (by approximately 1.2 million). The number of the working age population between 15-54 (i.e. people with the best chance of finding a job) will have fallen by some 570,000 by 2020. This has put a challenge and increasing competition on the present and future labour market. eGovernment offers a unique way to both upgrade the skills, increase the work flexibility of older people. Old age often implies less active engagement in different societal areas, such as the field of ICT. The digital divide is therefore an age-related division with senior citizens being in the group of "non-adopters". The reasons of the latter is, on the one hand, biological, psychological, social and economic. Therefore, for this social group eGovernment can be a means of learning of new technologies and thus retaining their personal flexibility and professional upgrading, and adoption of ICT (www.ingentaconnect.com). The major part of unemployed people consists of older people, in particularly in rural areas. This is why it is important for the eGovernment projects to be related to local changes in social structure and demographic composition.

Internal mobility in Poland is low, whereas emigration movements abroad (especially to other EU countries) have been significantly increasing in the last few years. High external mobility has a positive impact on the development of the informational society and eServices usage, as people want to discover new ways to stay in touch with their families and friends.

III.3. Main Drivers for the Development of eGovernment and eHealth Services

Main drivers in eGovernment

The **increasing level of ICT infrastructure and digital skills** have been major drivers of eGovernment services in Poland since the beginning of 1990s. The latter has been evidenced with various statistical data (see II.4, II.5, II.7). **The ICT market liberalisation contributed to more affordable access to the Internet,** simultaneously translating into higher penetration of networks is an other important driver of eGovernment services. The factor of the highest impact is the diminishing installation costs and lowering access prices. However, the ratio of users is considered unsatisfactory, so in 2006, the Office for Electronic Communications issued many decision directed at the expansion of the Internet.

An other important driver is the **increasing political pressure on information society development and implementation of ePoland Strategy**. The latter has been also very much effected by EU policy developments (*eEurope, eEurope+ and i2010*). The ePoland Strategy, along with a supplementary National Strategy of Development of Broadband Access to Internet (from December 2003), has been adapted to the priorities of the European Commission defined in the Lisbon Strategy. **ePoland strategy gave an impulse to raise regional programmers of the electronic administration** (e.g. The Strategy of Development of Małopolska Province). At present each out of 16 regional Operational Programmes also include the information society priority, meaning that each province has direct financial means for development of the ICT infrastructure. Worth mentioning is the Operational Programme Development of Eastern Poland which assigns financial resources for improvement of broadband access, reinforcement of networks of telecottages and training for those threatened with digital division.

The structural funds aiming at support the EU policy implementation in the sphere of information society enabled Poland to implement new eServices such as: ePUAP and PESEL2. ePUAP project, assumed to be a one-stop shop for electronic public services by 2008. ePUAP is being set up as an information portal, further developed into an integrated platform. The last stage will be dedicated to the creation of a proving ground for supporting efforts on the introduction of standards and their publication. The project is supported by the structural funds with a horizon of being fully

operational by 2008, with a timeline admitting of no delay. Another project worth mentioning is re-engineering of the state register of citizen identification - PESEL2 system. Similarly to ePUAP, the project is co-funded by the European Union and aims at creating an interoperable environment for citizen identification. The PESEL 2 is a reference register to ePUAP.

Moreover, **eServices are becoming a part of wider innovation strategies of Polish economy with ICT being considered as a driver for increased economic growth** (see National Computerisation Programme of Poland for 2006). The initiative i2010, aiming at strengthening innovation and investment in ICT research to promote growth and more and better jobs, has been embedded in the National Computerisation Programme of Poland for 2006. The OP of Innovative Economy for 2007-2013 not only provides financial support for eGovernment projects (EUR 700 million) but also points out at strategic objectives of eServices creation. The OP Innovative Economy, after a recent change is devoted to the development of eServices 33.8% of overall funds directed to expansion of information society, that is EUR 660 million (MRR, 2006). Within the OP Innovative Economy for 2007-2013, EUR 1,949 million will be directed to support the development of information society.

The newly adopted National Computerisation Plan for 2007-2010 has been the first strategic document, execution of which would be financially supported. It will make up an important driver of the eServices development in Poland. All the ministries have assumed a commitment and support for accomplishment of the objectives set up by the Plan. Each of the ministries involved has been duty-bound to deliver the action plan specific to the previously agreed area of activity.

The active participation of the Polish entities in the 6th Framework Programme, priority area: information society technologies also contribute to development and implementation of new eGovernment solutions. The dynamics of overall participation in comparison with the 5th Framework Programme are the highest within the EU25, the increase ratio of participation was 83%. (NCP, 2006). The Ministry of Interior and Administration of 2006 takes part into two eGovernment related projects - eGovernment and eGovBus. The aim of the first one is to deliver the European eGovernment research strategy, the latter one is to create a prototype of dynamically adaptable information system.

Main drivers in eHealth

The most dominant driver of eHealth services development in Poland is the **rapid development of ICT infrastructure.** Although there is a lack of national eHealth strategy, the bottom-up, emerging initiatives constitute an important driver for eHealth development in Poland. Moreover, the draft regional eHealth strategies (e.g. Lodz Voivodship) provide a further engine for the development of ICT infrastructure and eHealth services in the region.

There is an **increasing interest in eHealth projects and services among business and private actors**. The latter constitutes an important demand as a side factor of eHealth services development. As a result a number of commercial portals offering general and more specialised health information.

The growing political support for eServices is an other important driver in eHealth. The recently adopted amendment to the OP Innovative Economy has increased the funds for development of eHealth to EUR 660 million. The funds has been directed to the creation of interoperable platform for provision of eServices. The OP Human Capital directs financial support to training of medical personnel, with the aim to increase the eHealth competence among decision makers and regular staff.

III.4. Main barriers for the development of eGovernment and eHealth services

Main barriers in eGovernment

Firstly, the major barrier associated with the existing eGovernment and eHealth applications **is the lack of willingness to use electronic applications both inside public administration as well as among ordinary citizens in Government-to-Citizen relation**. Likewise, ordinary citizens also rarely

communicate with public administration or healthcare officials in this manner, because it is not the fastest and the most reliable form of contact.

In many cases, electronic services offered publicly are treated only as a mere invitation to commence the administrative procedure, which has to be continued in traditional manner (see Gateway to Poland outlined above). The situation looks better with respect to G-two-B because there exists specialised applications such as Payer (Płatnik) that are used on an everyday basis. Nevertheless, businesses expect much more functionality. For instance, a recently launched eDeklaracje programme, will allow only big corporations to submit tax declarations using the Internet. Smaller businesses will still have to wait.

The cost of equipment and certificate for using an electronic signature are to high to be obtained by an average citizen (starting at about PLN 400 - EUR 105 for an year license). As a result, the electronic signature was bought by only 10 thousand from 3 million existing in Poland companies (Rzeczpospolita of 15 April 2006). The eInvoice service was introduced by only large companies used it in order to cut cost and save time. Whereas for small companies this service is not affordable, 4.04.2006).

In the years 2004-2005, the government launched an information campaign "Friendly office" focusing on changing the image of public administration in Poland. The aim of the campaign was to present good and citizen oriented offices in Poland. However, there **are still limited efforts made in order to inform people on eSecurity and data protection.**

A lack of interoperability is an other major barrier for the eGovernment development. The lack of standards proves difficult in achieving seamless data sharing between public information systems. In Poland, there are four companies that may provide an electronic signature (Krajowa Izba Rozliczeniowa, Sigillum, Signet and UniZeto). Each electronic signature is legally equivalent. The law allows using different formats. Consequently, each electronic signature has its own format and is not compatible with the other.

There is also a **weak link between ICTs and general innovation policy of a country**. The national innovation policy fails to stress the importance of ICT in overall process of building the long-term growth. Here are some more specific barriers in eGovernment and eHealth services.

The low level of managerial and technological competence among decision makers on all levels of administration division remains a serious hindrance in the successful pursuit of ICT-related projects. So does the lack of visionary thinking, reaching far beyond the political tenure. Public administration lacks specialists who could create efficient ICT systems, the uncompetitive salaries within the public sector cause brain drain challenges from the private sector. So, in general eGovernment is rather perceived as a tool for automating existing methods of handling tax payments than to be viewed as an instrument for modernising public services.

The r**egional disparities in advancement of eGovernment need to be taken into account**. There is an uneven development of eGovernment solutions, creating so called "islands of excellence". The Regional Operational Programmes also show differential attitude towards process of informatisation, resulting in versatile allocation of funds towards the development of eGovernment.

Finally, **Polish society is characterised generally by a low level of technological awareness and poor ICT skills**. It is especially notable at the poorest Polish regions in the eastern part of the country. The level of the Internet penetration is considered satisfactory in urbanised agglomerations, while the rural areas suffer from inadequate access to the ICT infrastructure.

Main barriers in eHealth

The main barrier for the development of eHealth is **the lack of strategy for development of eHealth and an inadequate level of funding devoted to informatisation of public health information systems**, and further development of eHealth.

The lack of political support for eHealth initiatives is perceived more serious as problems within healthcare i.e. low wages of medical personnel, insufficient saturation with up-to-date equipment or high level of indebtedness, cause eHealth initiatives to be difficult to be taken up. Furthermore, the scarce awareness of translation of the ICT application, combined with organisational change and back-office reorganisation into cost saving, proves that the improvement of eHealth 'state-of-the-art' is thorny.

One of the important barrier is **the lack of coordination and harmonisation of eHealth initiatives**, that can put a brake on establishing appropriate eHealth networks and services. As a result of poor coordination and monitoring of eHealth services, the activities of The Centre for Information Systems for Healthcare as a body of the Ministry of Health, functioning since 1989, are not visible. The webpage, provided only in Polish, informs only about five ongoing projects. These projects however have the aim to register, control and provide a location chart of service providers. There is no information on any project directly serving the patient. All projects are only mentioned. There is no information available concerning the implementation deadline and financial impact of the projects.

The eHealth projects implementation is not monitored. One of the reasons, is the lack of coordination between particular Ministries, namely, between the Ministry of Health and the National Health Fund. These two institutions, with the current budget limitations, are not able to implement such projects like the RUM.

The last group of barriers is related to the low level of educational skills and digital division. Inequalities in skills as well as the access to appropriate systems, knowledge and motivational support can limit and fragmentise take-up of both eGovernment and eHealth services.

The Polish procurement procedure also has a negative impact on the ICT development in Poland. An example should be mentioned how the Polish procurement procedure. The call for tenders, worth EUR 21.5 million (PLN 82 million) for ICT infrastructure for courts, public prosecutor's office and prisons (over 1,300 localizations) was announced in May 2004 (Rzeczpospolita 03 February 2006). The system will allow to have online access to the National Criminal Record system (Krajowy Rejestr Karny), and will have their own Intranet with the possibility to conduct teleconferences. Due to the complicated appeal procedure (over 5 arbitration committee verdicts, 2 judicial sentences and awards of the Court of Appeal and one award of the Supreme Court) the selection procedure could not be finalised in 2006, because of a subsequent appeal.

> **To sum up, the stable economic growth of Polish economy during the last decade creates a solid basis for the expansion of eServices by both business and public sectors. Nevertheless, the development of eGovernment and eHealth services is relatively slow in Poland. The progress in two domains, is therefore analysed based on single projects experience.**
>
> **The detailed analysis of the above mentioned barriers enables distinguishing four groups of the barriers impeding the eGovernment and eHealth services diffusion in Poland. The first group of barriers is related to financial problems of eServices, the second is related to market related activities of eGovernment and eHealth services, the third group of barriers include technical, organizational and legal problems and finally, the fourth group of barriers is connected to educational and ICT skills.**

IV. ANALYSIS OF THE POSSIBLE POLICY OPTIONS AT LOCAL, REGIONAL AND NATIONAL LEVELS SPECIFIC TO E-GOVERNMENT AND E-HEALTH

IV.1. Selected policy options specific to eGovernment and eHealth

The previous chapters' findings, particularly the number of existing barriers mentioned, show that eGovernment and eHealth have not come close to reaching their potential. These shortcomings result from the failure of the ePoland Strategy to overcome eGovernment challenges, which can be observed in the low level of the technological consciousness, and in the lack of a clear vision and scientific background for the ePoland Strategy, along with a lack of strong political leadership, and the lack of an implementation mechanism, besides the lack of the financial frameworks, the lack of legal basis for implementation, the lack of competence, experience and personal motivation as well as the limited application of "best practices". Moreover, the ePoland Strategy does not mention any institutions responsible for monitoring the implementation of the strategy. The deadlines are not binding. The implementing Ministries do not bear responsibility for not implementing projects according to the set deadlines. Moreover, there is a coordination problem between all institutions responsible for project preparation and implementation; the lack of aims which should be addressed by implementing the Strategy. Consequently, the policy options at local, regional and national levels should consider the above issues. The suggested list of policy options is presented below:

1) Improving the coordination mechanism of eGovernment and eHealth-related projects

The development of eGovernment services in Poland requires good coordination not only at the central level but also between the administration levels. The central co-ordination activities of eGovernment in Poland is currently carried out by The Ministry of Internal Affairs and Administration. The improvement of management, particularly greater commitment on the side of decision-makers is a key to faster development of centralised eGovernment networks such as STAP or applications such as ePUAP. The government also has to ensure that open standards for interoperability are respected.

To facilitate the development of eHealth services, there should be one body responsible for implementing the eHealth strategy. The eHealth is currently an uncoordinated bottom up initiative and has mostly a technological dimension. There should be, on the one hand, a coordination mechanism between all institution responsible for project preparation and implementation and, on the other hand, between the Ministry of Health and the National health Fund. Similarly, a monitoring system to consider project deadlines and financial impact should be established. It would set standards and give the guidelines for the informatisation development in the Heath care sector on all levels. Experts` opinions are divided on whether to decentralize the NHF and how to reform it. However, both groups agree that there should be a coordinating and evaluating institution with the capability to solve the existing problems.

Moreover, eGovernment and eHealth services require not only new IT technologies, skills but also re-organizational funding structures, which will enable the coordination of efforts with regard to informatisation processes of agencies and ministries.

2) Strengthening ICT education and training

Various studies show that Polish society is characterised by generally low level of technological awareness and ICT skills. The differences in the level of technological awareness and ICT skills are especially notable between the urbanised agglomerations and rural areas suffer from inadequate access to the ICT infrastructure.

The different evaluation studies on the policy impact show that little has been done in terms of

improving the ICT infrastructure. Poland's spending on ICT still remains unsatisfactory. Broadband penetration in Poland has remained on a low level for last few years. Therefore, it is important to deliver further financial support for broadband development in both rural and urban areas. Such means are also available through the EU structural funds. In order to take advantage of the EU structural funds, the support training of local governments on how to apply and utilise EU funding for the further development of information society in Poland is needed.

Reforms in policy must consider that educating and training people is a long-term process. Therefore, educating the youth about the application of IT tools in public services seems to be particularly important. The governmental training projects should emphasise the confirmation of computer knowledge during job selection procedures. The training programmes for public administration should also be based on best management practices.

The implementation of informatisation on all levels of public administration in the healthcare sector must be complemented by an adequate level of ICT skills, IT related project management and implementation. The latter will avoid a fragmentary approach of the informatisation process such as implementing certain individual IT tools instead of changing the style of administration activity.

Moreover, the government should seriously consider how to increase the personal motivation of public administration and medical staff in terms of eHealth and eGovernment services provision. The experience gained from the various projects show that the motivation to acquire digital skills develops only when the learner recognises a personal benefit in their acquisition. Thus, measures taken to promote digital integration must communicate more clearly the advantages of digital literacy on both the personal and the professional level.

Furthermore, it is important to strengthen the co-operation between academic institutions and public administration in promoting the new methods of administrative practice. At present, universities only observe the information society phenomenon, whereas they should be co-operating with public administration institutions in promoting, training and creating modern eGovernment and eHealth solutions. It would be worth implementing such possible co-operation solutions as:
a) training public administration managers in strategic and innovative solutions towards the advancement of information society on all levels of the administration;
b) public research grants supporting innovative projects under the condition of their implementation;
c) using media sources and education initiatives for building better trust between citizens and administration.;
d) strengthening lobbying activities of IT companies, forcing local administration to invest in infrastructure and the implementation of IT tools;
e) emphasising propagation of best practices in administration management (Great Britain, United States, Sweden and others);

The educational and R&D institutions should be more active in considering the world's best practices and serve as a conduit between already well-known practices and Polish administration. Administrational units should also ask more often for professional advice from the best international and national IT companies on the building and implementing of IT tools in eGovernment and eHealth services. They, however, have no such ambitions; functioning in their own world, they find it sufficient to observe changes.

3) Developing the ICT infrastructure and interoperability of eServices
Since the political changes in 1989, the general telecom policy has focused on the liberalisation of the telecommunications market and the extension and integration of existing regulations. The governmental change in 1997 has led to further liberalisation of the telecommunications market, which resulted in the privatization of Telekomunikacja Polska S.A and the restructurisation of the Polish

Post. It is important to further stimulate competition in the telecommunication market through further demonopolisation of the market and efficient enforcement of the existing law. Liberalisation of Poland's telecommunications market should lead to a decrease in the tariffs proposed by such companies as TP SA, Netia, Dialog vel Telefonia Lokalna and Electrim.

The implementation of the new eGovernment and eHealth services will depend on the degree of their security. Even though the degree of security of the existing eGovernment services is adjusted to European standards the lack of such security can be observed in the attesting, authorisation and protection of transmission as well as in making spare copies. Therefore, the supply of eGovernment and eHealth services must also go together with the development of security system of personal data protection.

Yet, the most important policy option in eHealth domain is to standardise of the information system in the healthcare sector and establish the informatisation strategy for the healthcare sector covering all the participants of the system. Particular emphasis should be placed on the implementation of the same standards, for example: standard DICOM and HL7 for demographical data. There should be a national document (in Polish) of the two above mentioned versions, which would allow applying all the signs of the Polish alphabet. It should be obligatory, so that the patients name would be written in the correct form, for example „Łącki" not „Lacki".

4) Improvement of legislative environment and the implementation of ePoland Strategy

There is a need to improve the ePoland Strategy with particular aims, projects and actions related to eGovernment and eHealth. The present reforms in administration and the healthcare sector have been proceeding without taking into account the informatisation aspects. With regards to eGovernment and eHealth services development and promotion, The Strategy should consider the development of information systems (such as management platforms of the courts' activities, transport services, construction, tourist information etc.) and a 'reform plan' for the healthcare sector, enabling development of eGovernment and eHealth services. eHealth strategies should be drivers for implementing new standards of quality, accessibility to the patient and improvement of efficiency of the healthcare system. It should, moreover, meet the needs of the elderly population.

There should be more emphasis on regional institutions to increase the eGovernment and eHealth services. Only five out of sixteen existing voivodships have implemented informatisation strategies for the years 2004-2006, whereas the eHealth strategy has not been implemented in any of the Polish regions. Currently, some of the regional authorities are starting to develop their own regional eHealth strategy (e.g. the Dolnoslaski region). Therefore, the regional authorities should be more active in setting their own eHealth objectives and long-term eServices strategies. Yet, more importantly they have to include the concrete eHealth actions and initiatives into their annual budgets and financial means of the ERDF (in form of the Regional Operational Programme).

The NCP, being a derivative of the Act, should contain a description of public tasks to be carried out by electronic means as well as the schedule for initiating their execution. Furthermore, articles 8 and 9, introduce sectoral and transsectoral projects which should define in particular the purpose of the project, the body responsible for executing the project, the scope of tasks envisaged to be performed as part of the project, the sources of finance as well as the estimated project costs and the project execution schedule. The NCP for 2006 makes an attempt to point out the bodies responsible for the development of eServices (i.e. eGovernment and eHealth), but it should be the aim of the NCP for 2007-2010 to attribute each service to a particular ministry or agency.

There is a strong demand for legal frameworks and standardisation of eServices in Poland, in particularly in regulating all the electronics of medical record forms, introducing electronic document-IDs and insurance IDs, defining safety standards of medical electronic data, introducing a law

allowing private insurance companies to compete with the NHF, which can increase the quality and the competitiveness of the eHealth services.

The development of eGovernment depends to a large extent on the definition and implementation of transparent regulations concerning the electronic procedures. There should be a legal act on eGovernment on the standardisation of electronic documents on all levels of public administration, providing access to central registry offices, as well as starting up a central interoperability platform.

5) Increase funding for eGovernment and eHealth services

One of the main reasons for the low efficiency of the ePoland Strategy is the lack of financial tools for its implementation. There should be a special budgetary framework for the development of eServices for citizens in Poland. In terms of eServices for business, the state should be able to set up a public-private partnerships (PPP). The latter would allow to combine the scarce budgetary resources for informatisation and experience of private firms in introducing the complex IT projects.

Another option would give the administration of systems to the administrative sector, however building up and maintaining contact with the private sector, as the latter might have more professional IT staff. There are, however, services which can not be the subject of business transactions (for example, the act of complaining). In certain areas of IT, outsourcing (model ASP) can be applied. Implementation, however, of IT projects must have a non-profit character. Finally, the financial model should also consider the specific features of regions in which it will be implemented.
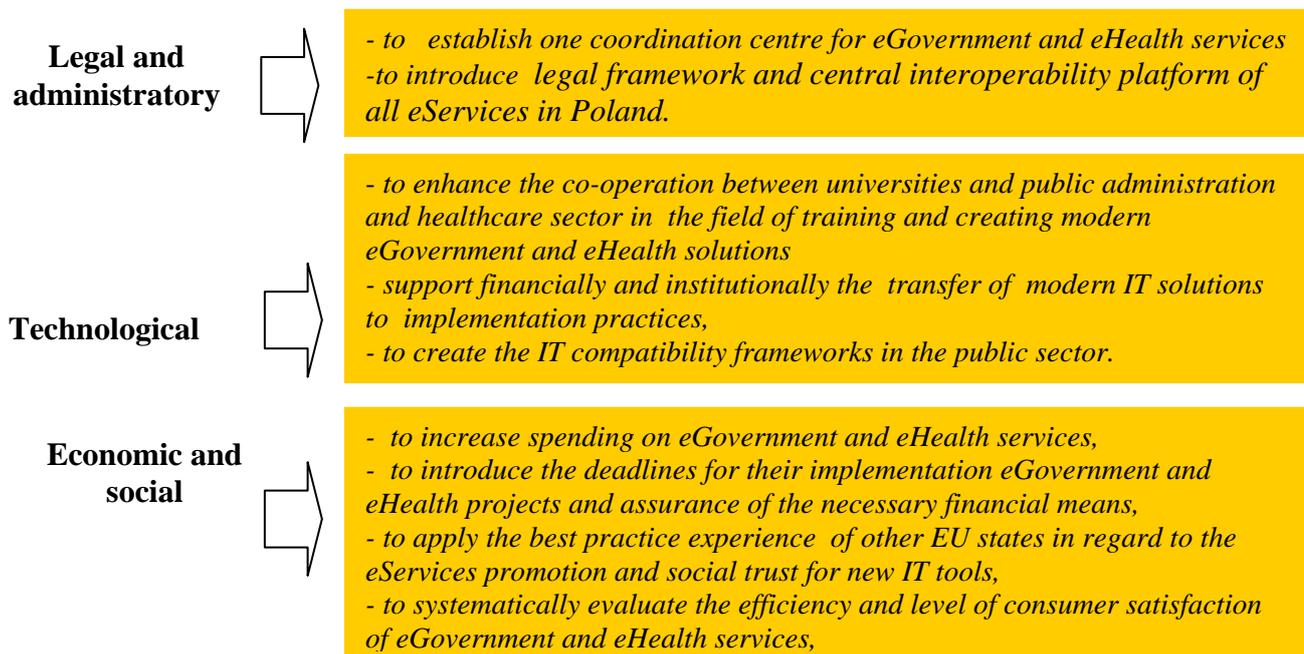
There are more advantages from involving the private sector in eGovernment and eHealth projects. In case of the former, they result mainly from the relatively deeper profit-oriented approach of private sector towards the projects success. Moreover, the private sector can contribute to an acquisition of skills and know-how, an increase in the efficiency of eServices, a greater consumer or customer orientation.

Since eHealth is not supported by national administration there should be established a special financing scheme for the development of eHealth, within the structural funds of the 1.5. Sectoral Operational Programme Improvement of the Competitiveness of Enterprises. All the priorities within SPO WKP apply equally to eHealth and eGovernment. Creating a special budget for eHealth is even more challenging, as the Polish healthcare sector has been witnessing the growing debt by hospitals. The accumulation of debt by Polish hospitals could be stopped with the help of state aid and the restructuring of the public autonomous health administration units' act (State Aid and Restructurisation Of Public Autonomous Health Administration 2005). Currently, it is estimated that between 40 and 100 units have obligations exceeding their own budgets.

Finally, an overhaul of the healthcare and public administration financing system especially the need for higher payments for service providers and employees, seems to be the next important issue. According to the Supreme Medical Chamber, one of the main problem of the healthcare sector is the emigration of medical staff to other EU countries after the EU enlargement (some 5 000 have left and still 25 000 - 30 000 are expected to leave the country in the nearest future). The situation with regard to specialists appears to be even more dramatic: in some regions, 50% of haematologists have already left the country. The same problem has occurred in the private medical sector. Without changing the wage policy, the implementation of any eGovernment and eHealth strategies, even if all legal barriers have been overcome, is hardly possible.

The graph below presents the recommended policy measures based on the above mentioned policy options (Diagram 1):

Diagram 1. The exact policy actions in the domain of eGovernment and eHealth in Poland on regional and national levels:

Legal and administratory

- to establish one coordination centre for eGovernment and eHealth services
-to introduce legal framework and central interoperability platform of all eServices in Poland.

Technological

- to enhance the co-operation between universities and public administration and healthcare sector in the field of training and creating modern eGovernment and eHealth solutions
- support financially and institutionally the transfer of modern IT solutions to implementation practices,
- to create the IT compatibility frameworks in the public sector.

Economic and social

- to increase spending on eGovernment and eHealth services,
- to introduce the deadlines for their implementation eGovernment and eHealth projects and assurance of the necessary financial means,
- to apply the best practice experience of other EU states in regard to the eServices promotion and social trust for new IT tools,
- to systematically evaluate the efficiency and level of consumer satisfaction of eGovernment and eHealth services,

The success, however, of any of the policy options is determined by strong political leadership of the implemented ePoland Strategy supported by a sound financial strategy and an increase in R&D investments. It is also important to keep the continuity of the existing strategies and projects in order to go forward with the implementation of new IT solutions. Finally, it is important to set in order legal regulations and interoperability standards.

The national debate should be accompanied by concerted actions, projects and the support of the EU financial framework. Apart from that, the Polish medical institutions should be more active in joining the works of the EU institutions such as the High Level Group on Health Services and Medical Care. The latter would give an extra experience on the existing eHealth solutions.

Finally, it is important to set in order legal regulations and interoperability standards. One of the possibilities is to establish a special institution responsible for information and informatisation standards in the healthcare sector. The establishment of such an institution will allow for the development of open and interoperable (compatible) systems as well as bring the informational order.

IV.2. The impact of eGovernment and eHealth on competitiveness growth of Poland and realisation of the Lisbon Strategy

An assessment and comparison of the costs versus the benefits of eGovernment and eHealth services for the economy is a not an easy task. It is important not only to evaluate the possible impact from eGovernment or eHealth based on the cost savings they generate, but also the financial benefits that they generate for their citizens and businesses. Moreover, one needs to be aware that the economic impact of the eServices might also be indirect, by transforming the way individuals, public entities and businesses work and communicate. Any type of eServices, such eGovernment or eHealth, might substantially contribute to economic performance and competitiveness of firms through the investment in skills, organisational changes and innovations (*2006 Annual Report on Poland*, www.ec.europa.eu).

The quantitative measurement of the effect of eGovernment and eHealth on the development of competitiveness in Poland is complicated by the lack of a reliable relationship between eGovernment and eHealth and economic performance, especially of the private entities and the relatively short

period of the above mentioned services provision. However, based on the existing observations it is possible to assume the following macroeconomic impacts of eGovernment and eHealth services:

a) Improving productivity and operational efficiency - the introduction of eGovernment services has brought a change towards a paperless office, enforcing the Government rules and regulations, improving productivity and operational efficiency as public employees had to adjust.;

b) Increasing the investment in human capital and life-long learning, the increase of the adaptability of workers including the public employees;

c) Cutting of the administrative burden for people and businesses. Decreasing the administrative burden on people and reducing the bureaucracy for people and businesses;

d) Increasing the transparency in the public sector. Greater transparency in the public sector processes and procedures will reduce the risk of corruption and fraud; this improvement will contribute to more transparent, accountable and open public institutions;

e) Improvement of the IT skills of administration staff. Employees, including the public administration personnel, had to adjust to new ways of collaborating with each other, with citizens and enterprises and to new service provision processes. IT skills became a must and employees' productivity assessment procedures are about to be redefined.

The final effects of the above mentioned impact depend mostly on the motivation and legal obligation of administration staff to apply the IT tools in daily work. Therefore, the introduction of IT tools for the administration and the healthcare sector should be supported by the development and modernisation process of IT facilities as well as an intensification of training processes. Secondly, the possible impact on macroeconomic performance is largely determined by the new financial period 2007-2013 and elimination of legal barriers of eGovernment and eHealth mentioned in Chapter III. Moreover, the impact of eGovernment and eHealth will depend on the systematic investment in R&D activities regarding the on-line services. Above all, strong leadership and co-ordination is necessary to meet the i2010 challenges.

Among the factors slowing down the above expected impact is certainly the lack of electronic tax returns for citizens and the lack of a financial framework for the eHealth strategy.

To sum up, the policy options at local, regional and national levels should consider the above mentioned drivers and barriers of eGovernment and eHealth development in Poland. Consequently, the suggested list of policy options include not only further development of ICT infrastructure and technological advancement but also investments into upgrading the IT and managerial coordination skills of local self-government, public agencies, ministries and healthcare institutions. Moreover, the success and popularisation of the new eGovernment and eHealth services will depend on the degree of their security, which should be adjusted to European standards.

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

V.1. The most important technological, financial and security challenges specific to eGovernment and eHealth

V.1.1. The technological developments and challenges specific to eGovernment

Economies that invest into R&D of a particular technology are the ones that benefit the most from this technology and its progress. An indigenous research capacity is essential to master and assimilate technologies that can be exploited to Poland's social and economic advantage, e.g. the development of eGovernment and eHealth services (Reding, 2006).

The system of information and document exchange does not mean only document circulation related to administrative procedures (e.g. passing administrative decisions) but also current works of public administration involving the necessity of using materials or data in possession of other public units. Obviously, one of the important challenges is to make those sources available on-line and in electronic form, which will considerably facilitate and speed up the functioning of particular administration units. Further R&D activities in the eGovernment domain should focus on:

a) the development of fast and reliable modems which will enable downloading and sending information to particular units;

b) the standardisation of software and application types (e.g. databases) used in particular institutions, which is vital both for the compatibility of electronic documents and the knowledge of technical solutions among various administration units employees;

c) the compatibility of administrative procedures with the system of electronic circulation of documents.

Citizens' access to information

The system of public administration stores and processes various sets of data and information, which are used not only by other administration units, but private units such as households or companies as well. It concerns both legal acts as well as other reports, studies and documents, whose content might be of interest to individuals not working in the system of administration. The further technical developments should consider:

a) the accessibility of materials prepared by public administration should be easy to use by persons and institutions both in terms of software and data format;

b) efficiency and ease of use of the system of data access (e.g. via the websites of public institutions). The latter would require clearly and easily applicable rules of public access to data, information and documents prepared by public administration.

Services for citizens and enterprises

The performance of eGovernment and eHealth services should be more "user oriented". They should further develop "the user oriented" model, which puts citizens at the centre and provides access to all of the major government services. Besides that, the Polish government should more often use the experience of consulting companies when it comes to the modernisation of the public sector and applying commercial best practices.

The effective use of ICT in public services for citizens and enterprises would for example mean the possibility of service delivering via Internet, which could save time and money. To meet the above mentioned possibility, it is important to further develop the hardware requirements for the establishment of access point to electronic public services, which can not be limited to high tech

computers and should enable the possible access to Internet in public places like public offices or post-offices.

Improvement of resource management in public administration

The current international experience shows that it is important to constantly improve the management and use of resources (human and material) of public administration, which can lead to savings in public expenditures (Mimicopoulos, 2004). Appropriate IT systems might help to get the information on actual use of resources in each unit, employees and its tasks. There should also be procedures in public administration according to which every public unit would have the obligation to provide information about its resources.

V.1.2. The technological developments and challenges specific to eHealth

Managing and controlling such a complicated system as the healthcare system today is possible only through the effective use of ICT. On the one hand, there is a need to define and introduce one national electronic medical record system in accordance with technical specification laid down by law. On the other hand, the collected information must be comparable and exchangeable. The collected information would easily help to evaluate customer's needs at local, regional and national level. Moreover, it would be necessary to conduct analyses of epidemiological, demographical and economic character. Irregularities and potential fraud would be detected easily. The control over payments for treatments, prescribed medicine and registration procedures would be assured. More of technological challenges of eHealth are listed below:

Exchange of information about participants of the system

Full and precise information about all participants is crucial for the functioning of the system. Therefore, the ICT could be developed for the effective system of collecting and exchanging the information. Moreover, it is important to make the system compatible with the systems of other public units (tax authorities, social assurance system) which are responsible for the management of public funds.

Collecting and exchanging information on medical procedures

ICT can be very useful in collecting and exchanging information about medical treatment in the case of a particular patient. Precise information about a patient's disease, medical treatment, used drugs etc, is crucial in modern medicine. Electronic forms of such documentation will allow to get fast access to information about the patient and will make it possible to send necessary data to another unit of the healthcare system. There is need for further development and supply of healthcare units with modern computers and easy to use software, so that medical and other personnel do not have to lose time inputting data.

Exchanging information with other countries

The increasing labour mobility of Poles across the borders creates another challenge for national healthcare systems. European integration allows one to pay healthcare contributions in one country and have access to healthcare systems in every other member country. Management of cross country exchange of information has to be standardised, so standard forms (software, data format) of documents need to be prepared in all countries.

Information system for doctors and other employees

Medicine is a specific sphere where knowledge is one of the most important factors. ICT development can be very useful to improve access to medical knowledge and to exchange information. Services like teleconferences, on-line consultations, on-line access to scientific reports etc, should be standard in for

every doctor. Thanks to ICT, one can have access to research results or share one's experience with other doctors. It is important to conduct further R&D works on the information exchange systems.

V.1.3. The financial issues and challenges in eGovernment

The financing of eGovernment and eHealth projects must encourage greater involvement of the private sector, via for example PPP projects. The PPP models can make eGovernment services more understandable and effective, by initiating knowledge transfer and cost effectiveness to public finances. Therefore, it is important to conduct further research on the most successful PPP models in eGovernment and their possible applicability in Poland.

Similarly, the accession to the EU and availability of structural funds directed at the process of informatisation, opens up new opportunities, yet create challenges to the management, accounting, monitoring and auditing of the received funds. The latter will require new financing and a management model for the Polish administration – bringing together the existing management models and adjusting it to Polish social, economic and political environment.

V.1.4. The financial issues and challenges in eHealth

Even though a Strategy on the eHealth domain has been adopted, no financial investment plan has been added to it. The problem seems to be even more complicated as the Polish healthcare sector's debt is growing. The debt of the Polish hospitals could be alleviated thanks to state aid and restructuring of public autonomous health administration units. Currently, it is estimated that from 40 up to 100 units have obligations exceeding their own budgets. In 2003, debts of hospitals amounted to EUR 1.27 billion (PLN 4.6 of billion) (debt to service providers, mainly to electricity and water suppliers, medical staff and other employees) and in 2006 achieved EUR 1.13 billion (PLN 4.3 billion) (Rzeczpospolita 2006). Therefore, the implementation of the offered eHealth projects requires a multi-annual financial perspective. It would be important to implement such a programme, in opposite to average state investments, which have to be implemented each year into the state budget. Moreover, there is need for further solutions to national budget related problems, such as high debt-to-GDP ratio. This may significantly constrain the potential investments in eHealth domain. It would be preferable to consider the spending on eGovernment and eHealth in the discussions on fiscal policy.

V.1.5. The security aspects and challenges in eGovernment

ICT solutions both related to eGovernment and eHealth should be reliable. This entails having instant access to the services free from errors generated by the information system. Ensuring that eGovernment initiatives are in step with society's expectations in this area is a crucial means of building trust. Together with the benefits resulting from the Internet and other technologies appears the challenge to secure the privacy for citizens. The new eServices, such as eGovernment and eHealth, might be in particularly exposed to any kind of frauds as they contain important personal data. The possibility of fraud in internet transactions might be more than 20 times higher than it is in the off-line world, according to The US consulting company Celent Communications (Financial Times, IT Review, 21 May 2003, p.1). Therefore, it is important to conduct further R&D studies on data security and privacy protection in both eGovernment and eHealth domains.

V.1.6. The most important future security and monitoring aspects and challenges in the eHealth

The eHealth development in Poland is still at its beginning. Even though there is a body responsible for developing eHealth strategies, not much output could be observed. Moreover, there is no real coordination in the eHealth domain. Only one strategy has been implemented so far, which, because of its content, can not even be considered as one. There is no information on the eHealth project

implementation. The authors of this report have been trying for several months to obtain such information, but without success.

Moreover, eHealth strategy does not propose any monitoring mechanisms to be put in place. There are no evaluation schemes offered. Therefore, the system of monitoring must be clearly defined. This concerns not only the end-user satisfaction but also the effectiveness of the implemented projects. The strategy does not proceed in the manner of informing and reporting on the achieved results when comparing to other countries. Also, there are no regulations on eHealth security aspects yet. There is only a general protection data regulation, which is not specifically designed for eHealth purposes. The security aspects in eHealth services are particularly important. The access and exchange of medical information has a very confidential character and must be well protected from unauthorised people.

To sum up, the ICT sector can be considered to be one of the most rapidly developing R&D areas in the world. The latter is, however, related to constant financial, technological and security challenges of governments and private firms. The most important barriers and drivers as well as factors of eGovernment and eHealth in Poland suggests that the main R&D challenges should address the further improvements in the quality of IT facilities, management and information exchange systems, data protection and security system of public administration and healthcare institutions.

SUMMARY AND POLICY RECOMMENDATIONS

Over the last ten years, Poland has seen positive rates of economic growth, relatively low inflation and intensive FDI inflows. Yet, the biggest problem which has yet to be solved is high unemployment rate. The dynamic of future economic growth will be determined by factors such as human, financial and real capital, and the quality of the institutions. The latter, however, depends on the level to which ICT applications are used in public administration and healthcare - for example in eGovernment and eHealth.

The level of the online sophistication of public services has increased significantly in Poland, particularly in front offices. Nevertheless, full online availability is still lagging behind the rest of the EU Member States. eHealth development in Poland is still in the early stages. Though there is a body responsible for developing eHealth strategies (Centre of Information Systems of Health Care - Centrum Systemów Informacji Ochrony Zdrowia - CSIOZ), not much output has been observed as yet. Moreover, there is no real coordination in the eHealth domain and no strategy has been implemented so far. There is no information on eHealth project implementation.

The initial pattern of diffusion of eServices in Poland indicates that they are concentrated in and around large urban metropolises which are the hubs of established economic activity. Nevertheless, information technologies gravitate to urban centers with greater income and educational skills.

There are undoubtedly many obstacles (financial, technological, socio-cultural, demographical and others) which slow down the development of eGovernment and eHealth services, e.g. insufficient digital skills of public administration officials; lack of social adaptability and flexibility in exploring eGovernment and eHealth services, especially among elderly people; poor dissemination of eHealth and eGovernment practices among Polish regions; insufficient broadband access, especially in rural areas, etc. The report takes these obstacles and the competitiveness-related challenges of the Polish economy into account and makes the following policy recommendations with regard to eGovernment and eHealth service development:

1) Prioritize the development of information society services, particularly eGovernment and eHealth, in the political agenda,
2) Deliver further financial support for Broadband development in both rural and urban areas,
3) Reform public finances so as to maintain macroeconomic stability and increase public resources available for development spending, including spending on eGovernment and eHealth,
4) Stimulate competition in the telecommunication market through further demonopolisation of the market and efficient enforcement of the existing law,
5) Support education and training of public administration and healthcare institutions on the applicability of ICT in their work,
6) Support training of local governments on how to apply and utilize EU funding for the further development of the information society in Poland,
7) Strengthen the administrative and coordinating role of the Ministry of Internal Affairs and Administration on the information society policies,
8) Promote competition in the product markets in order to stimulate ICT investment by the private sector,
9) Increase public monitoring of the timely progress in informatisation of public administration and public services,
10) Introduce standardization of software and application types used in particular institutions;
11) Strengthen the role of Office for Electronic Communication (Urzad Komunikacji Elektronicznej - UKE - the national telecommunication market regulator), and enforce its decisions in the area of

telecommunications services' markets,

12) Introduce access to administrative procedures via the Internet (wherever possible) to cut the need for personal visits,

13) Introduce a monitoring system for the implementation of eServices,

14) Shift public R&D spending from non-applied to applied research and stimulate cooperation between public R&D and research institutions and the business sector,

15) Introduce mandatory online filing corporate and personal tax reports for companies and citizens,

16) improve the interoperability of eGovernment and eHealth services with the information systems of other sectors and countries.

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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, Slovenia 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, Poland.

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.

The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national.