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

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PREFACE

Policy context

At the European Council held in Lisbon in March 2000, EU15 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 Hungary

This report was produced by the consortium member from Hungary, the ICEG European Center. It presents the results of the research on eGovernment and eHealth in Hungary.

First, it describes government and health system in Hungary 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

ADSL	Asymmetric Digital Subscriber Line
APEH	Adó – és Pénzügyi Ellenőrzési Hivatal - Hungarian Tax and Financial Control Authority
B2A	Business to Administration
B2B	Business to Business
B2C	Business to consumer
eBEV	Elektronikus bevallás, Electronic Tax Declaration
ECDL	European Computer Driving Licence
EFMI	European Federation for Medical Informatics
eGAMES	eGovernment Assessment, Measuring and Evaluation System
EIF	European Interoperability Framework
EKG	Elektronikus Kormányzati Gerincháló, Electronic Government Backbone
EKK	Elektronikus Kormányzat Központ, Electronic Government Centre
EKOB	Elektronikus Kormányzat Operatív Bizottság. Operative Committee for eGovernment
EPreLEX	Electronic Law Preparation System
ESKI	Egészségügyi Stratégiai Kutatóintézet, National Institute for Strategic Health Research
EU	European Union
EU8	The new member states joining the European Union on 1, May, 2004, except for Cyprus and Malta
EU10	The new member states joining the European Union on 1 May, 2004.
EU15	The member states of the European Union before 1 May, 2004.
EU25	The member states of the European Union from 1 May 2004 till 31 December 2006
EUR	Euro (currency)
GDP	Gross Domestic Product
GVOP	Gazdasági Versenyképesség Operatív Programme, Economic Competitiveness Operative Programme of the Structural Funds for Hungary, 2003-2006
HALY	Health Adjusted Life expectancy
HDG	Homogeneous Diseases Groups
HEFOP	Humán Erőforrás Fejlesztési Operatív Programme, Human Resources Operative Programme of the Structural Funds for Hungary, 2003-2006
HIF	Health Insurance Fund
HSNET	Hungarian Security Network
HUF	Hungarian Forint
HUNEID	Hungarian electronic ID card
ICA	International Council for Information Technology in Government Administration
ICT	Information and Communication Technologies
IDA	Interchange of Data between Administrations
IDABC	Interoperable Delivery of European eGovernment Services to Public Administrations, Businesses and Citizens
IDASZB	IDA Szakértői Bizottság, IDA Expert Committee
IHM	Informatikai és Hírközlési Minisztérium, Ministry of Informatics and Communication
IKB	Informatikai Kormánybiztosság, Office of the Government Commissioner for ICT
IMIA	International Medical Informatics Association
ISDN	Integrated Services Digital Network
IT	Information Technology
ITKTB	Interministerial Committee on Information Society

ITOSZ	National Association of Intelligent Local Authorities
KEIR	Governmental Electronic Document Handling System
KET	Unified Public Service Act
KIETB	Inter-Departmental Conciliatory Committee for Government Information Technology
KITKH	Office of Central Government Informatics and Social Relations
KÖOÉSZ	National Association of Small Town Governments
KÖSZ	Nationwide Association of Local Governments of Parishes, Small Settlements and Micro Regions
KSH	Central Statistical Office
KÜK	Government Customer Information Centre
LAN	Local Area Network
MAN	Metropolitan Area Networks
MEDINFO	National Institute for Strategic Health Research
MeH	Miniszterelnöki Hivatal, Prime Minister's Office.
MITS	Hungarian Information Society Strategy
MJVSZ	Association of Towns with County Status
MÖOSZ	Nationwide Association of County Level Local Governments
MÖSZ	Association of the Hungarian Local Governments
NFT	Nemzeti Fejlesztési Terv, National Development Plan
NHIFA	National Health Insurance Fund Administration
NIIF	National IT Infrastructure Development Programme
NISH	National Institute for Strategic Health Research
NMS	New Member States
NPHMOS	National Public Health and Medical Officer Service
NUTS	Nomenclature des Unites Territoriales Statistiques
OECD	Organisation for Economic Cooperation and Development
OEP	National Health Treasury
ORFK	National Police Headquarters
OSAP	National Statistical Data Collection Programme
OSS	Open source software
PC	Personal Computer
PHARE	Pologne-Hongrie Aid a la Reconstruction Économique, the European Union's financial and technical cooperation programme with the countries of Central and Eastern Europe before the accession
PPP	Public-Private Partnership
PPS	Purchasing Power Standards
R&D	Research and Development
SME	Small and medium enterprises
SMS	Short Message Service
TESTA	Trans-European Services for Telematics between Administrations
TFP	Total Factor Productivity
TÖOSZ	Nationwide Association of Local Government of Settlement
TTP	Trustable Third Party
VAT	Value Added Tax
WAN	Wide-Area Network
XR	Virtual document office

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INTRODUCTION: COUNTRY FEATURES

Country Profile: Facts and figures

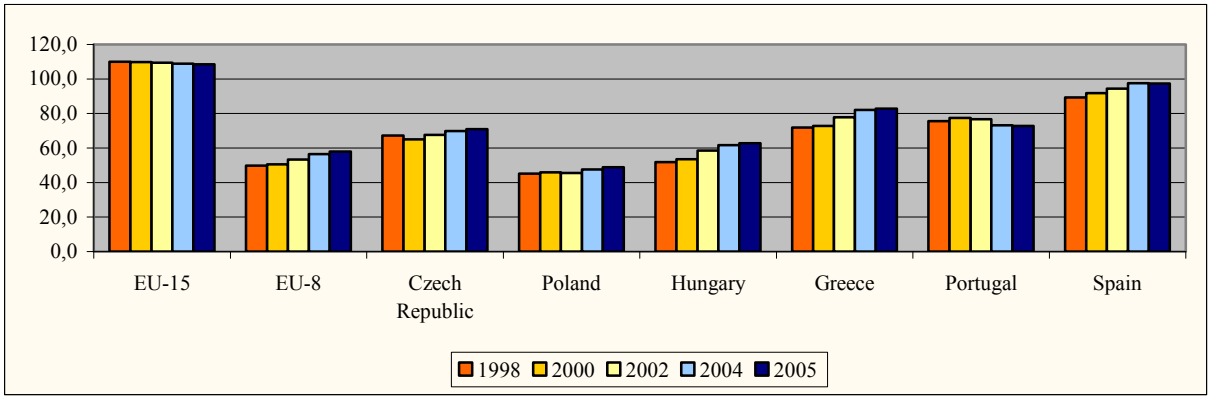
General data	
Population (2006)	10,070,000
Area (sq. km)	93,000
Population density (2006)	109.6/sq. km
Urban population (2005)	64.6 %
Currency Unit (April 2007)	Forint (1 EUR = 255 HUF)
Economic data	
GDP per capita PPS (2005)	13,400 EUR
GDP growth rate, av. 2002-2006	4.1 %
General government deficit/GDP (ESA'95) (2006)	9.2%
Consumer price index (2006)	3.9%
Unemployment rate (2006)	7.5%
Composition of GDP (2005)	Agriculture: 3.7% Industry: 25.1% Services 72.2%
Percentage of households connected to the Internet (2006)	32%
Broadband penetration rate (2006)	7.5%
Administrative structure	19 counties and the capital city

Source: Central Statistical Office, Eurostat and ICEG European Center

Economic situation in Hungary

Level of economic development. Hungary is a middle income economy whose per capita GDP measured in Purchasing Power Standards (PPS) in 2005 was around 13,500 Euro, placing Hungary in third place among the EU8 countries. In comparison with the EU15, the per capita GDP in 2005 stood at 62%. As a result of fast GDP growth the country was able to reduce the income gap in regard to the EU15 in the last decade (in 1998 the per capita GDP measured on PPS was 54% of the EU15 average). Per capita GDP measured both at PPS and at the current exchange rate is lower in Hungary than in the cohesion countries and Slovenia, but it is slightly higher than the average of the EU8 countries.

Chart 1. GDP per capita in PPS between 1998 and 2005, where the EU25=100[11]



Source: Eurostat, 2006

[11] In the report the calculation of various averages for EU10, EU8, etc is based on Eurostat data but is prepared by ICEG European Center, using unweighted averages of the respective countries.

Economic growth. Between 2002 and 2006 the average GDP growth was 4.1%, while GDP expansion gradually slowed down with the GDP growing in 2006 by only 4.0%. Hungarian economic growth has been characterised by three distinct phenomena in recent years. One has been the significant increase in the contribution of private consumption to growth thanks to the rapid expansion of nominal and real wages as well as weakening liquidity constraint of households due to financial deepening (increased lending to households and access to financial instruments that were previously unavailable (mortgage lending, consumer credits, foreign currency denominated borrowing). As a result, consumption growth was close to or has even exceeded GDP growth in recent years. The rapid increase of private consumption was accompanied by a significant rise in public consumption, reflected in high fiscal deficit and increasing public debt in addition to other factors.

The second distinct feature of recent growth has been the volatility of private sector capital formation. While the investment rate remains low,[12] private capital formation has been highly volatile and it was possible to sustain investment growth in the last two years mainly through public sector investments associated with major infrastructure outlays.

Finally, an important and promising element of growth is the high level and fast expansion of exports especially following the accession to the European Union. The average expected increase of exports for 2004-2006 was 12.5%, which raises further the already high real openness and level of integration with the EU15 markets. Export growth was already significant, but accession resulted in its further acceleration, mainly to the traditional export markets (Germany, Austria and Italy) but interestingly to the EU8 countries too. Hungarian exporters have been able to gain market share in recent years, showing the rise in their competitiveness.

Table 1. Summary table on macroeconomic developments in Hungary

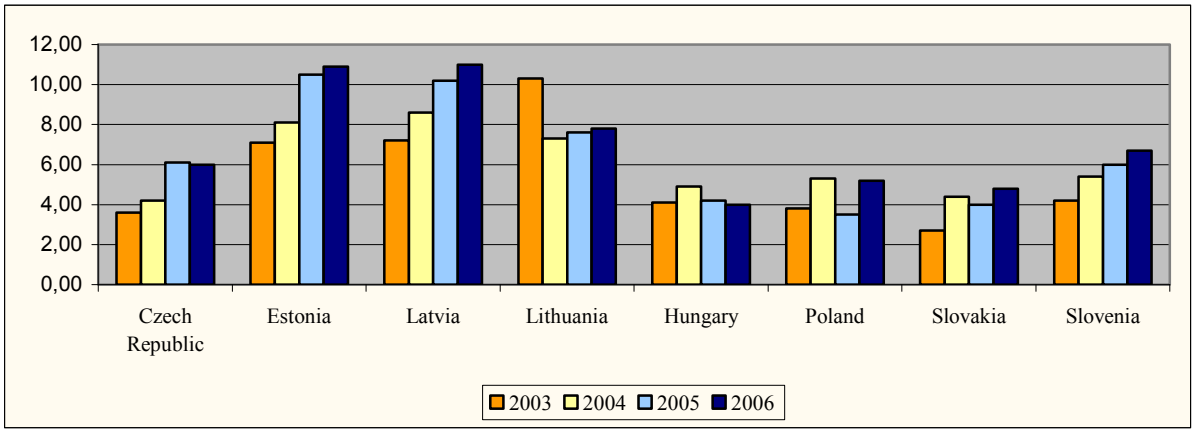
	2003	**2004**	**2005**	**2006**
GDP (%)	**3.4**	**4.6**	**4.5**	**3.90**
Private consumption (%)	8	3.5	3.5	1.2
Public consumption (%)	5.5	-1.5	-1.5	-5.5
Gross fixed capital formation (%)	3.5	8.2	8	-1.8
Export (%)	7.5	15.5	11	18.0
Import (%)	10.5	14	8	12.6
Consumer price index (average, %)	**4.7**	**6.8**	**3.6**	**3.9**
Unemployment ratio (%, ILO definition)	**5.8**	**6.1**	**7.3**	**7.5**
Real wages (%)	4.5	2.6	6.0	3.7
General government balance/GDP (%)	**-7.2**	**-5.5**	**-6.3**	**-9.2**
Public debt/GDP (%)	57	58	60	69.0
Current account/GDP (%)	-8.5	-8.9	-8.3	-5.8

Source: ICEG EC, 2007

While compared with the EU15 average economic growth in Hungary is robust, however, if the other EU8 countries are considered, it is less spectacular. As the chart below shows GDP growth was the second lowest among the EU8 after either Slovenia or Poland in the last four years. As the study of the World Bank (World Bank, 2006) reflected, in a growth accounting framework the major factor determining the growth of Central European EU8 countries in recent years was the rise in total factor productivity (TFP), while at the same time the contribution of the accumulation of factors of production (labour and capital) remained moderate.

[12] Private investments to GDP equal only 19% of the GDP, while public investments make an additional 3.5%, leading to an investment ate of 22-23% of GDP. This is high when compared to the advanced European countries, but remains low when assessed against the investment rate of the NMS and other middle-income economies.

Chart 2. GDP growth rates in Hungary and in the EU8 countries (%)



Source: Eurostat, 2006

This structure is even more characteristic for Hungary, as manufacturing production and export-led growth has been characterised by sizeable increases in labour and total productivity, especially between 1997 and 2002. However in recent years there has been a slowdown in productivity increase while at the same time the contribution of the labour supply to growth remained moderate and the low investment rate did not increase. The slowdown of TFP increase as well as low capital formation have been the two major factors accounting for the relative deterioration of Hungarian growth performance in comparison with the other EU8 countries.

Labour market developments. In terms of labour market indicators, Hungary is a country with low unemployment and low employment/activity rates. Its unemployment rate in 2006 was the second lowest - together with Latvia and Slovenia - among the EU8 countries. The unemployment rate was especially low in the early years of this decade as both strong output growth and the exit of many unemployed people from the registries led to a substantial fall of the rate to below 6% of the labour force. In recent years there was a 1.5 percentage point increase in the rate, due to structural changes and ongoing rationalisation in the private sector as well the negative effect caused by the reallocation of certain industries from Hungary to neighbouring and East Asian countries with lower wages.

The low unemployment is accompanied by low employment and activity rates, which has remained among the lowest in the EU25 in the past 7-8 years. There is an almost 8 percentage point gap between the average of the EU15 and Hungary, and the Hungarian level is far from the Lisbon targets. Several long-term factors explain employment and activity levels, including labour market rigidities, the exit of numerous unemployed people from the labour markets, a high proportion of long-term unemployed people, and a sharp rise in the number of early pensioners. In addition to this skill and education problems also contribute to low employment and activity rates, as they reduce the entry or re-entry of the unemployed to the labour market.

Table 2. Employment and unemployment rates in Hungary and other selected countries (%)

	Unemployment rate				Employment rate			
Country	1998	2001	2004	2005	1998	2001	2004	2005
Czech Republic	6.4	8.0	8.3	7.9	67.3	65.0	64.2	64.8
Greece	10.9	10.8	10.5	9.8	56.1	56.0	59.4	60.1
Poland	10.2	18.2	19.0	17.7	59.0	53.4	51.7	52.8
Hungary	8.4	5.7	6.1	7.2	53.7	56.2	56.8	56.9
Portugal	5.1	4.0	6.7	7.6	66.8	69.0	67.8	67.5
Spain	15.0	10.3	10.6	9.2	51.3	57.1	61.1	63.3
EU15	9.3	7.3	8.1	7.9	61.4	64.0	64.7	65.1
EU25	9.5	8.4	9.1	9.0	61.2	62.8	63.3	63.8

Source: Eurostat, 2006

Public sector imbalances. A critical element of the macroeconomic performance of the Hungarian economy is the state of public finances. The deficit of the general government in 2006 was the highest in the EU25 and public debt approached the Maastricht level. With its average general government deficit equalling 7.5% of GDP between 2002-2006, Hungary recorded the worst fiscal performance among the EU8 and its general government debt level was the highest in the same country group in 2006. The worsening fiscal performance was due to the very strong deficit bias and pro-cyclical nature of fiscal policy in recent years.

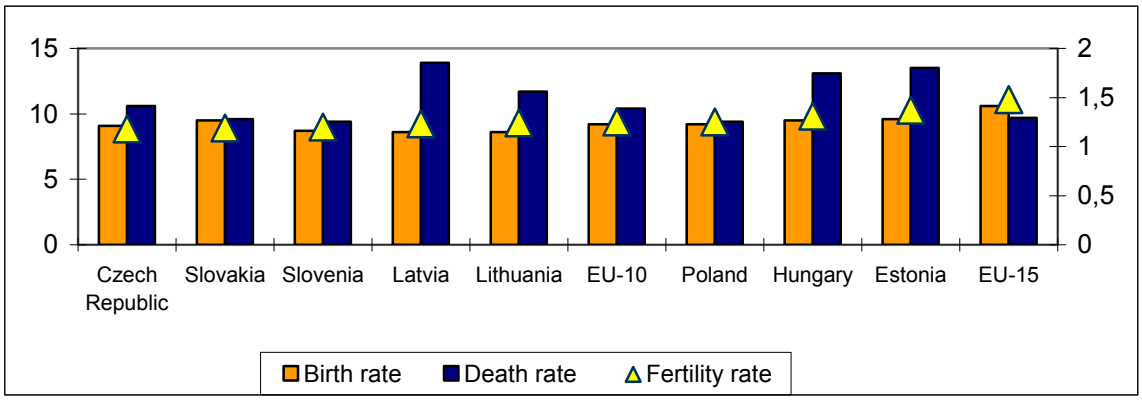
The pro-cyclical nature of fiscal policy was linked to significant increases in public sector employment and wage levels, recent growth in capital formation and public investments, generous tax cuts affecting mainly indirect taxes (VAT among others), which were the easiest kind of revenues to collect. The lack of public sector reforms in such significant spending areas as education, public administration, healthcare, pensions led in the analysed years to an unsustainable and unmanageable increase in general government outlays.

As a result of pro-cyclical fiscal policies and the increase of expenditures, the primary balance deteriorated between 2002 and 2006 from a small surplus to a deficit of almost 5.5% of GDP. The high primary and total general government deficit resulted in a snowball effect on public debt, leading to its growth from 52% of GDP in 2001 to 69.0% in 2006. In addition to its growth, public debt has been increasingly financed from net foreign savings making the country more vulnerable to exogenous shocks (an increase of interest rates in advanced economies, a change in investor sentiment concerning emerging economies, etc.), and such concerns have been gradually materialising since early 2006. A high public sector borrowing requirement has been associated with net dissaving of the public sector, which together with declining net private savings led to the increase and stabilisation of a sizeable current account deficit reaching on average 7.5% of GDP in 2002-2006. This has created the well-known twin deficit problem, which stands at the core of the current macroeconomic imbalances.

Demographic indicators

The Hungarian population has been shrinking in recent decades. The population reached its peak in 1980 with 10.7 million inhabitants and this had declined to 10.077 million inhabitants by 2006, representing an almost 6% decline in 25 years. There are various demographic, social and economic reasons behind these developments, but the major factor is the high death rate compared to other countries. In 2004 the death rate was by 3-4 percentage points higher in Hungary than in the EU10 and EU15 average and was exceeded only by Estonia and Latvia among the EU10. While the number of births declined the birth rate nevertheless remains equal or close to the average of the EU10 countries as other countries have also experienced relative declines in birth rates.

Chart 3. Birth, death and fertility rates in Hungary and other selected countries



Source: Eurostat, 2006

In addition to shrinking, the Hungarian population is also aging and this is especially reflected in the shift of the age composition of the population. While life expectancy - as will be seen – has not been increasing and has remained low compared to the average life expectancy in the EU15 and EU10, the

proportion of population over 65 years has grown constantly in recent years, and currently this group represents 15.3% of the total population, which is higher than in the EU10, but lower than in the EU15 on average. The aging of the population and the low birth rates are reflected in the almost lowest proportion of the generation below 14 in the total population: this group represents 16% in Hungary, compared to 16.5% in the EU10 and 17.5% in the EU15 average.

General government indicators and trends

The level of centralisation and redistribution in Hungary is high, compared to the level of development of the country and the level of economies with similar size, per capita GDP. As the tables below show, in 2004 the general government expenditures slightly exceeded 50% of GDP, while the centralisation rate was around 45% of GDP. The level of revenues and especially of expenditures exceeds both their level in the EU8 countries and their level in the EU15 countries, when they had income levels similar to the current Hungarian one.

The level of average tax revenues to GDP is somewhat lower in Hungary than in the EU15, but considerably exceeds the EU8 average, mainly due to the lower revenue collection by the Baltic States. The table below reveals three distinct features of the Hungarian tax and social security system. First, in Hungary the contribution of indirect taxes to revenues is high, especially in the case of VAT but also in the case of excise taxes. Due to extensive tax evasion and tax avoidance, governments strongly relied on indirect taxes, which are harder to avoid and both the tax rates (in the case of VAT 25% and 15% and from 2006 20% and 15%) have been high and the tax basis broad, resulting in 16% GDP related revenues from this source.

The second feature of the tax system is that - notwithstanding the high level of marginal tax rates in the case of personal income taxes and bracket creep - revenues from direct taxes represent a smaller part of GDP than in the EU15. This is partly due to the low corporate tax income (which is 16%, and one of the lowest in Europe)[13] and to widespread tax evasion in the case of personal income taxes.

The final distinct feature of the Hungarian tax and contribution system is the relatively high proportion of social security contributions: the contribution rates are high, the taxed income base is broad and with a high incidence of tax evasion, the revenues collected from social security fees are slightly above the average level of the EU8.

Table 3. Tax revenues in Hungary compared with the average of EU8 and EU15 in percentage of GDP

	Hungary			EU8			EU15		
	1995	2003	2004	1995	2003	2004	1995	2003	2004
Total taxes	43.6	39.2	39.2	37.6	34.2	33.8	42.0	41.7	41.9
Indirect taxes	17.8	15.8	16.1	14.7	13.4	13.4	13.6	13.9	13.7
Direct taxes	10.7	9.7	9.5	9.9	8.5	8.2	12.5	12.9	12.9
Social security contributions	15.0	13.5	13.4	13.3	12.4	12.1	15.6	13.3	14.2

Source: World Bank, 2006

Looking at the expenditures grouped according to economic classification, there are several expenditure items, which explain the relatively high level of public sector redistribution in Hungary. Compared both to the majority of other EU8 countries and to the average of EU15, Hungary still spends relatively more in relation to GDP on subsidies and collective consumption, which partly has to do with its sizeable number of public servants.[14] Altogether the amount spent on social transfers is

[13] There is an additional 4% solidarity tax but this is seen only as temporary, helping the current fiscal adjustment programme.

[14] According to the statistics, approximately one quarter of all employees are employed in the public sector, including the central administration, local and regional government, various public institutions as well as companies, and utility

similar to other countries, where the level of social transfers in kind is somewhat higher, while of other transfers (other than social transfers in kind) it is somewhat lower. Finally, due to its debt level higher than the average of the EU8 and higher interest rate level than the average of EU15, Hungary spends slightly more on interest expenditures, while the level of capital spending by the general government is on a par with the NMS, though exceeding the level in the EU15.

Table 4. General government outlays in percentage of GDP according to economic classification (2005)

	EU15	Czech Republic	Estonia	Hungary	Poland	Slovenia
Subsidies	1.2	2.7	0.9	1.5	0.4	1.5
Interest	3.4	1.3	0.3	4.2	3.1	2.1
Collective consumption	8.2	12.3	8.8	10.8	9.1	8.4
Social benefits other than social transfers in kind	16.3	12.3	9.6	14.2	17.6	17.2
Social transfers in kind	12.5	11.7	9.9	13.4	8.5	11.9
Other current expenditures	1.9	1.2	0.9	1.7	1.5	1.3
Total current expenditures	43.5	41.6	30.3	45.7	40.2	42.4
Gross fixed capital formation	2.3	4.2	3.4	3.4	3.4	2.8
Total expenditures	47.7	53.2	35.8	50.7	49.0	48.2

Source: World Bank, 2006

When looking at the composition of general government expenditures according to major functions, spending on two major items does not differ significantly from EU15 averages and other Central European countries. The major items such as healthcare and education represent the same proportion of GDP in public spending as in these two country groups and there are no sizeable differences in other major expenditures (defence, public order and safety or environment). There are, however, two groups of expenditures, where the Hungarian figures slightly exceed the EU15: Hungary still spends more of its GDP on general public services partly linked to its more extensive public sector[15], and also somewhat more on economic issues.

Table 5. General government outlays in percentage of GDP according to functional classification

	EU15	Czech Republic	Estonia	Hungary	Poland	Slovenia
General public service	7.0	7.4	3.2	8.2	7.0	8.5
Defence	1.6	1.8	1.8	1.3	1.0	1.4
Public order and safety	1.6	2.2	2.7	2.1	1.2	2.0
Economic affairs	4.6	11.7	3.8	5.7	3.2	3.5
Environment protection	0.7	2.0	0.6	0.8	0.6	0.5
Housing and community amenities	0.9	0.9	0.6	1.1	1.5	0.1
Health	6.2	6.5	4.1	5.7	3.0	6.8
Recreation	1.0	1.9	2.2	2.2	0.8	0.9
Education	5.7	4.9	6.4	6.1	6.3	5.9
Social protection	19.1	14.6	10.4	17.0	19.9	18.3
Total outlays	48.3	53.2	35.8	50.2	44.5	48.2

Source: World Bank, 2006

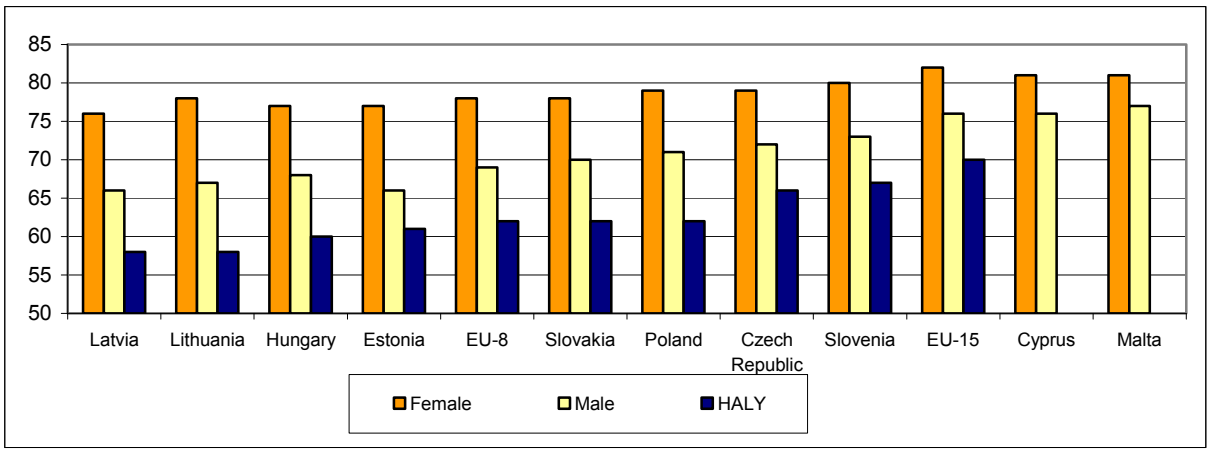
providers belonging to public ownership. This means that approximately 800,000 employees are employed in the public sector as it is defined in the broader sense, which is high compared with other countries at a similar level of development.

15 The Hungarian public sector is big in international comparison. First, as mentioned the level of general government expenditures is high compared with the majority of European countries and also with countries at a similar level of economic development. Second, the public sector has been employing on average 25% of the total labour force, which is also high in international comparison.

General healthcare indicators and trends

The life expectancy of the population is much lower in Hungary, than the average of EU15 and remains somewhat lower than in the EU8 (especially in comparison to the other Central European countries, while slightly exceeding the Baltic States). The gap compared to the EU15 in life expectancy for females is five years (female life expectancy is 77 in Hungary), while for males it is 9 years (male life expectancy is 68 in Hungary). There is a much bigger negative gap (9 years in Hungary, 6 years in the EU15, though also 9 years in EU8) in the comparative life expectancy of males and females, reflecting the fact that the death rate among middle aged males is exceptionally high in Hungary (similarly to most of the EU8). The gap in the health-adjusted life expectancy (HALY)[16] is even bigger between Hungary and the EU15: it was 10 years in 2005.

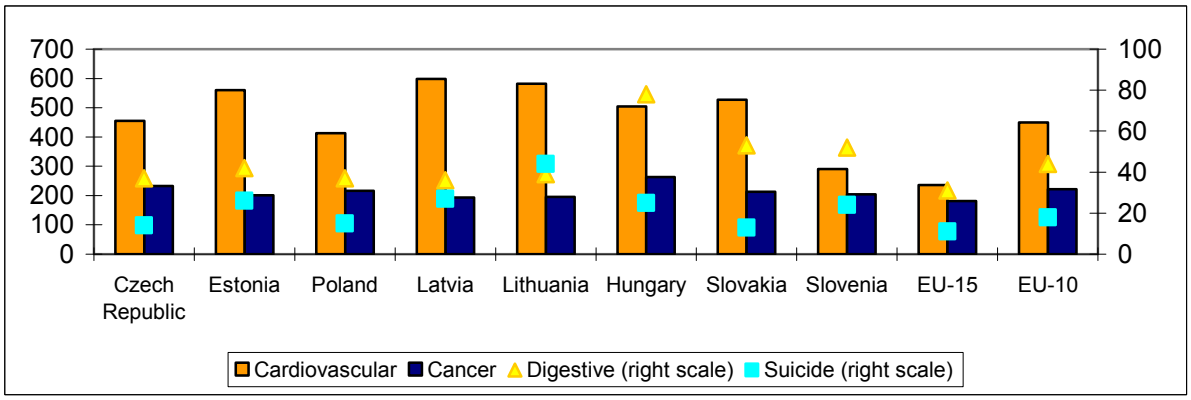
Chart 4. Life and health adjusted life expectancy (HALY) in years



Source: Eurostat, 2006

One reason for lower health expectancy is the higher incidence of certain illnesses and causes of death compared to the average of EU15. As the chart below shows, cardiovascular diseases – similarly to other EU10 – have a much higher incidence in Hungary than in the old Member States and the same is true for cancer and causes of death related to digestive illnesses, where Hungary is ranked number one within the EU10. These three illnesses represent the major difference in the death rates between Hungary and the EU15: in 2004 the death rate in Hungary was 3 percentage points higher than in the EU15.

Chart 5. The major causes of death per 100,000 of population

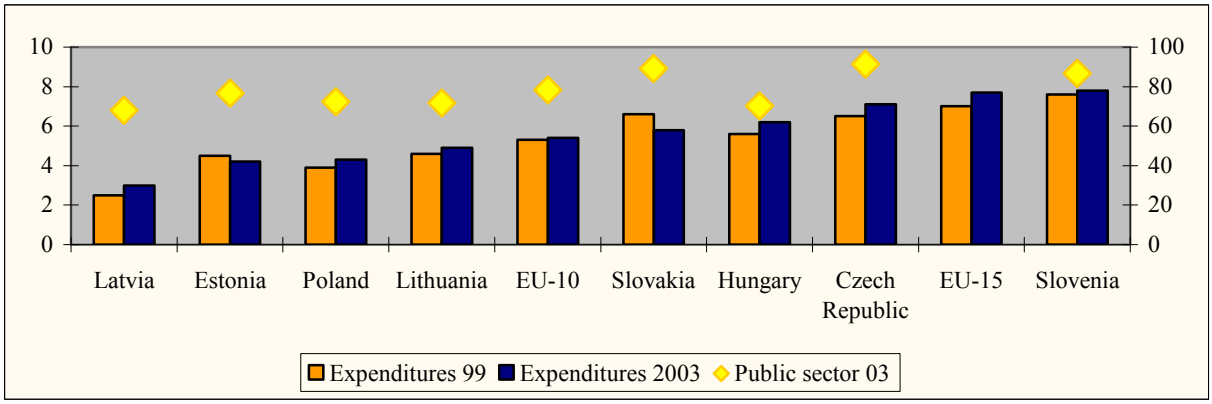


Source: Eurostat, 2006

[16] HALY measures the life expectancy in healthy conditions.

The level of healthcare expenditure in Hungary is between the level in the new and old Member States. In 2003 (the latest available comparable data) Hungary spent 7.8%[17] of its GDP on healthcare, which was higher than in most EU10 countries (the average was 6.5%) with the exception of Slovenia and the Czech Republic, and remained below the 9.1% spending of EU15. Reflecting cost increases, the deteriorating state of health of the population as well as lack of reforms leading to cost containment, healthcare expenditures to GDP rose between 1999 and 2003 by almost one percentage point. Similar to most of the EU8, the public sector represents the greater part of expenditure, as the major healthcare institutions are in public ownership with certain healthcare services and professions (including family doctors, dentists, and certain preventive services etc.) privatised in recent years. The level of public expenditure in percentage of total expenditure on health was similar to that spent by Portugal and Spain.

Chart 6. Healthcare expenditures compared to GDP and the proportion of public sector spending (right scale) (%)



Source: Eurostat, 2006

While the level of healthcare indicators to GDP is around the average spending by EU15 countries, the per capita healthcare expenditure in Hungary in 2003 was much lower than in the old member states. Even compared with less advanced EU15 countries, the OECD statistics presented in the table below show that on a PPP based exchange rate the Hungarian per capita spending was 60% of the average of the three Mediterranean countries.[18]

The table below also reflects one acute problem in the Hungarian healthcare system: the exceptionally high proportion of pharmaceutical expenditures compared to total healthcare expenditures. In 2003 28% of all healthcare expenditures were spent on pharmaceuticals, which were higher than the spending proportion in the other European countries. This high level of spending was also associated with significant subsidies spent from the "Medicine Fund" (Gyógyszerkassza) by the government: the level of subsidies in 2005 exceeded 1 billion EUR equalling 1% of GDP.

[17] This level includes both public and private spending on healthcare and is thus higher than the figure reported in the previous table.

[18] Moreover, if one measures per capita spending not by PPP but by actual exchange rates than the gap would be even bigger due to the undervalued level of the current exchange rate of Forint compared with the long-term equilibrium one reflected in the PPP measurement

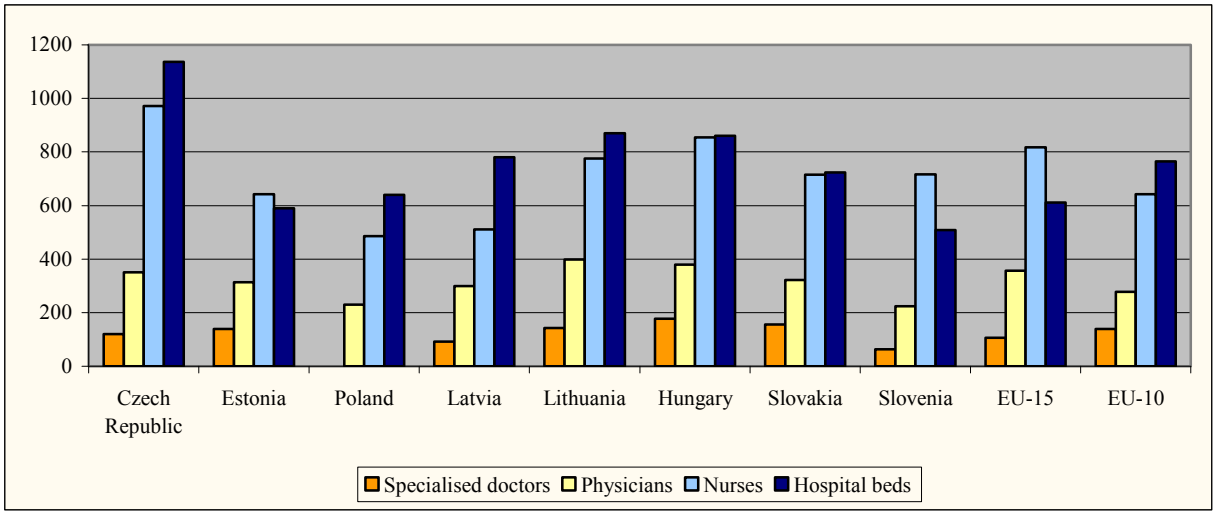
Table 6. Summary indicators of the healthcare system in comparison with selected countries

	Total health expenditure as % of GDP 2003	Public expenditure as % of total expenditure on health 2003	Health expenditure Per capita USD PPP 2003	Pharmaceutical expenditure as % of total expenditure on health 2003	Acute care beds per 1,000 population 2003	Practising physicians Per 1,000 population 2003
Czech Republic	7.5	90.1	1,298	21.9	6.5	3.5
Greece	9.9	51.3	2,011	16.0	..	4.4
Hungary	7.8	70.2	1,115	27.6	5.9	3.2
Poland	6.0	72.4	677	..	5.1	2.5
Portugal	9.6	69.7	1,797	23.4	3.1	3.3
Spain	7.7	71.2	1,835	21.8	3.1	3.2

Source: OECD, 2005

Another structural problem – which is to some extent present in other EU8 countries too - is the bias towards hospitalisation and maintenance of bigger, but less flexible healthcare units. As described later in the chapter on the healthcare system, the financing and incentives structure of the healthcare system is biased towards more frequent and longer hospitalisation. While in recent years there has been some rationalisation of the institutional system, the big hospital and healthcare units still dominate the system and the number of hospital beds per 100,000 inhabitants remains among the highest in Hungary. Similarly, the number of doctors and nurses is high, while there are structural gaps between the required and available professionals in both areas.

Chart 7. The number of doctors and hospital beds per 100,000 inhabitants



Source: Eurostat, 2006

ICT usage

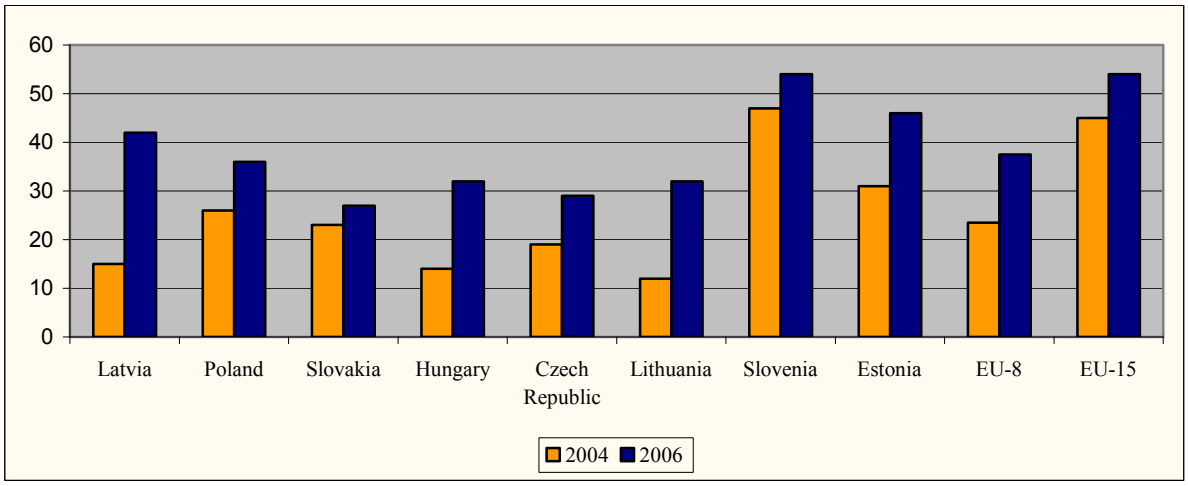
The diffusion of ICTs in the Hungarian economy is presented by general access, household and enterprise sector specific usage indicators. The level of the ICT market in per capita value in recent years on average was around 40% of the EU15 level. While the size has been expanding, the level still remains below some other EU8 countries.

According to recent figures, 45% of the population above the age of 15 used personal computers on a regular basis in 2005, which is quite low compared to other European countries. The gap between Hungary and the EU15 average has been almost one to three in the number of PCs per 1,000 of population. Moreover, only 32% of the population had a PC at home, while the respective figure for

the EU15 was 58%. While a rapid rise of wages and incomes as well as various government programmes contributed to the increase in the proportions of households with PCs by 10 percentage points in 2005, the gap with the EU15 still remained 20 percentage points.[19]

Internet penetration in the household sector, slightly above 30% in 2006, is considerably lower than in EU15 and it is below the EU8 average. While the proportion of households having Internet connection at home almost doubled between 2004 and 2006, this still kept Hungary among the lower level EU8 countries lagging behind Estonia, Slovenia and Latvia. The gap between the average level of households having internet connection at home in the EU15 and Hungary is almost 25 percentage points, while in the case of regular Internet users it is 10% points.

Chart 8. Percentage of households having Internet connection at home

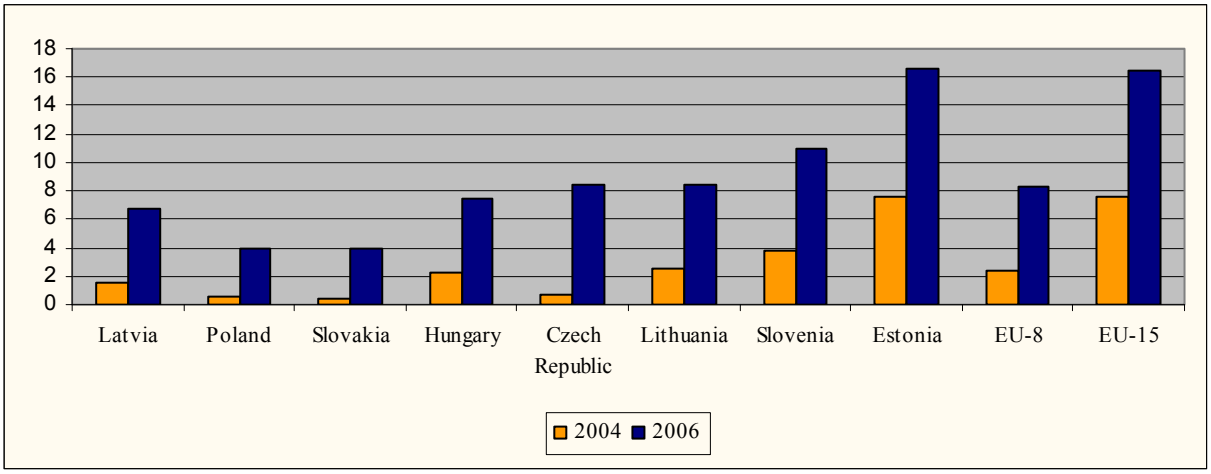


Source: Eurostat, 2006

In addition to the low level of Internet access, Hungary also lags behind in broadband penetration: the average penetration for EU15 in 2005 was slightly more than two times higher than in Hungary. Due to recent faster broadband expansion, the country was able to reduce the gap with the EU15. Broadband penetration rate (especially due to the ambitious programmes launched in recent years to develop it) reached in 2005 and stood at the average of the EU8, while it was around half of the EU15. The gap in broadband lines in percentage of the population in 2004 and 2006 narrowed: earlier it exceeded 1:3, and it declined to around 1:2 by 2006. However the expansion of broadband access was slower in Hungary than in the majority of the EU8 and currently broadband penetration is higher in the Czech Republic, Slovenia, Lithuania and Estonia than in Hungary.

[19] Various factors are behind this gap, including income differences, shortcomings in digital skills and last but not least the still high cost of Internet access.

Chart 9. Broadband lines in percentage of the population in 2004 and 2006 (%)



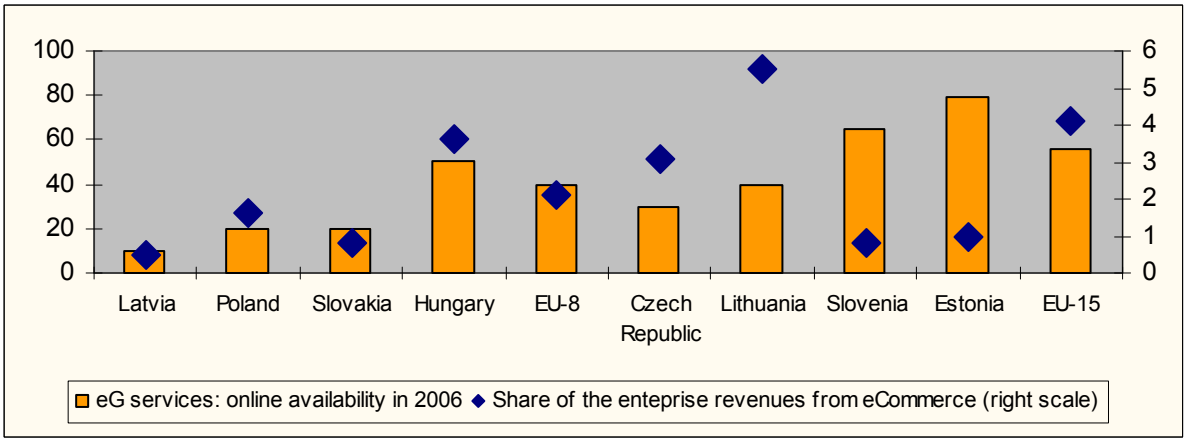
Source: Eurostat, 2006

There are several reasons explaining the speed of the spread of broadband: affordability (high price of PC and broadband access – compared to disposable income), lack of attractive content, digital divide and broadening income gaps may be the most important ones. One encouraging sign is that the share of broadband among new Internet connections is equal or even higher in Hungary than in EU15, which shows that penetration rates may increase much faster than in the past.

Following access indicators some summary indicators on the usage of eCommerce and eGovernment services by the private sector and citizens are presented. The level of eCommerce is rather advanced in Hungary, when compared with other EU8, but lags behind (especially in the case of bigger companies) the respective figures of the EU15. The proportion of eCommerce revenues from total turnover of the enterprise sector was on average 3.6% in 2006, which lagged behind only Lithuania and almost equalled the average of the EU15 (4.1%). The gap between Hungary and other advanced economies is higher for bigger enterprises and smaller for SMEs.

When looking at public institutions, one may notice sizeable gaps with EU15 but a very fast catching up in the supply of eGovernment services. Among the basic 20 public services 50% was available in 2006 online in Hungary, which was the third highest level among the EU8 after Estonia and Slovenia and remained only 6 percentage points lower than the respective figure of the EU15.

Chart 10. The level of eGovernment and eBusiness services in 2006 (%)



Source: Eurostat, 2006

While the supply of eGovernment services has been expanding only recently, the demand for them both in the household and corporate sectors has been increasing and has reached high levels. A recent

survey showed that the proportion of companies that use eGovernment services in Hungary is above the respective figures of EU15 and EU25, notwithstanding the fact that the scope of available services is more limited.

Altogether in comparison to EU15 and several other new member states, like Estonia or Slovenia, Hungary lags behind in the diffusion of information and communication technologies and the level of eServices provided. The differences are indicator specific with some areas catching up significantly in recent years (online availability of public services, proportion of revenues from eCommerce, the proportion of households that have broadband connection), while others show persistent gaps compared to the EU15 and frequently the EU8 too (Internet penetration, number of PCs in households, level of ICT spending to GDP).

Regarding the digital divide, several studies show that there is a significant gap in Internet penetration and other usage indicators between younger and older generations and between urbanised and rural areas.[20] Education also seems to be a crucial factor: in households where the head of household had tertiary education, Internet penetration was above 50%, while in the case of those with only elementary education it was 2%. (For those with different types of secondary education, it was between 12 – 30%).

The regional aspect of digital divide is also present in Hungary, showing more favourable data for Central Hungary (which includes the capital, Budapest) than for the other regions, and the western half of the country (Transdanubia) is also more advanced than the eastern part (Southern Plains, Northern Plains, North Hungary).

Table 7. Regional digital divide in Hungary

		ISDN lines per 1000 flats	**Cable TV connected per 1000 flats (2003)**	**PCs in public admin. per 100 empl.**	**PC supply of households (%)**	**Access of population to broadband (%)**	**Access of population to ADSL (%)**
Western part of the country	**Southern-Transdanubia**	48.7	502	76	29	65.5	58
	Western-Transdanubia	58.0	586	70	36		
	Central Transdanubia	45.2	573	83	35	69.8	66
	Central Hungary	109.3	527	117	41	98.4	85
Eastern part of the country	**Southern Plains**	26.0	333	70	24		
	Northern Plains	33.0	292	75	22		
	North-Hungary	37.0	451	81	27		
	Altogether	**59.3**	**465**	**98**	**31**	**76.3**	**70**

Source: ICEG EC, 2005 Regional aspects of Hungary's competitiveness

[20] For households, regarding place of living, the following values were found by the study at the end of 2004: Internet penetration for households in the capital was 37.5%, in major cities (county capitals) 19.5%, but in other cities/villages the penetration rate hardly exceeded 10%.

I. GOVERNMENT AND HEALTH INSTITUTIONS AND SYSTEMS IN HUNGARY

I.1. The Hungarian state and government

Since the amendment to the constitution on 23 October 1989, Hungary has been a parliamentary republic. The Republic of Hungary is an independent democratic state. The president of the country is elected via secret ballot, by a two third parliamentary majority for 5 years.

Parliament and the supervisory institutions

The supervising functions of the Parliament are executed through questions, interpellations, and parliamentary committees. Independent parliamentary supervision is represented by the **National Audit Office**, and by the parliamentary **commissioner of civil rights (ombudsman)**. The audit office has functioned since 1990, the ombudsmen started their activities in 1995. Official posts of the Parliament include the president, the vice presidents and the notaries.

Constitutional Court and the courts

According to the Act of 1989. XXXII. on the constitution and constitutional court, the supervision of adherence to the Constitution is the task of the Constitutional Court, which has been in operation since 1st January 1990. Decisions of the constitutional court are binding on all parties. In the Hungarian Republic jurisdiction is exercised by the Supreme Court, courts of appeal, county courts, and the local courts including the capital and the district courts of Budapest. Administration of the courts is performed by the National Jurisdictional Council.

The structure of public administration in Hungary

Public administration in Hungary is divided into three levels: **central government**, **county governments** and **local governments**. The other two levels – NUTS II and NUTS IV – are not empowered to act as such. NUTS II regions – covering on average of three counties - have been established mainly for statistical purposes, but so far they have not acquired a significant role in public administration. The NUTS IV level is called the level of micro regions, where many initiatives are launched but so far real power has not been granted to this level.

Table 8. The NUTS categories in Hungary

NUTS category	Identical traditional level	Nr. of these entities
NUTS I	country/central government	1
NUTS II		7
NUTS III	county governments + the capital	20
NUTS IV	small regions	168
NUTS V	local governments	3 135

Source: http://www.eu2004.hu/

Central government

Executive power is exercised and public administration is run by the central government, led by the Prime Minister. The head of the government is elected by the parliamentary majority, which also accepts the programme of the government with this election.

Parliament sets up the ministries. The list of ministries of the present government (in February 2007):[21]

- Ministry of Agriculture and Rural Development,
- Ministry of Defence,
- Ministry of Economy and Transport,
- Ministry of Education and Culture,
- Ministry of Environment Protection and Water Management,
- Ministry of Finance,
- Ministry of Foreign Affairs,
- Ministry of Health,
- Ministry of Justice and Law Enforcement,
- Ministry of Local Government and Regional Development,
- Ministry of Social and Labour Affairs,
- Prime Minister's Office.

There are two important state agencies that also play a role in eGovernment and eHealth: the National Development Agency, which being responsible for formulating the National Strategic Framework 2004-2006 and 2007-2013 also coordinates the planning of the Operational Programmes. The other agency is the State Reform Commission, which was set up in 2006 to advise on the necessary reforms to be instituted. The work and responsibilities of the State Reform Commission include reform of the public administration and the healthcare system and therefore touch upon eGovernment and eHealth issues (although so far these have not been dealt with in detail by the State Reform Commission).

NUTS II regions

The Act XCII of 1999 divided Hungary into regions in accordance with the requirements of the European Union. Since then, Hungary has established seven planning statistical regions, which cover counties, although county and regional development councils have also been established.

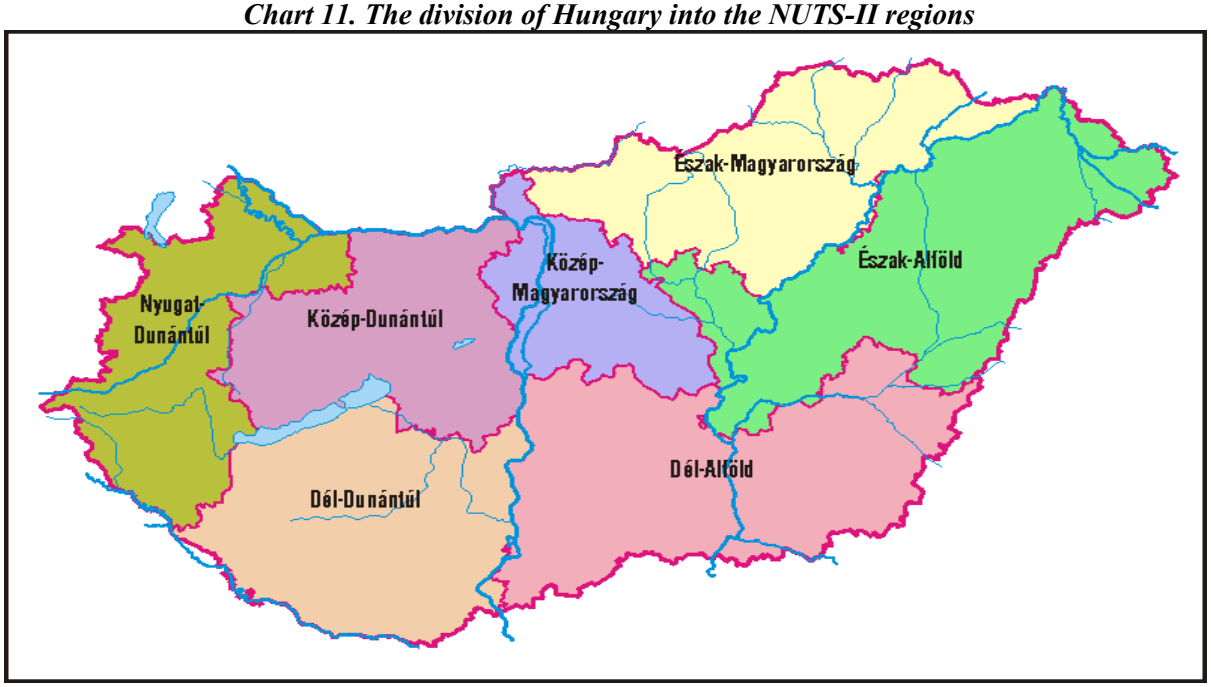
The seven NUTS-II regions are the following:

1. Central Hungary (Közép-Magyarország): incorporates Budapest and Pest County,
2. Central Transdanubia (Közép-Dunántúl): incorporates Fejér, Komárom-Esztergom and Veszprém Counties,
3. Western Transdanubia (Nyugat-Dunántúl): incorporates Győr-Moson-Sopron, Vas and Zala Counties,
4. Southern Transdanubia (Dél-Dunántúl): incorporates Baranya, Somogy and Tolna Counties,
5. North Hungary (Észak-Magyarország): incorporates Borsod-Abaúj-Zemplén, Heves and Nógrád Counties,
6. Northern Plains (Észak-Alföld): incorporates Hajdú-Bihar, Jász-Nagykun-Szolnok and Szabolcs-Szatmár-Bereg Counties,
7. Southern Plains (Dél-Alföld): incorporates Bács-Kiskun, Békés and Csongrád Counties.

NUTS II level administrations do not receive a significant budget, but they play a very important role in the planning and distribution of regional Operative Programmes.

[21] http://www.magyarorszag.hu/kozigazgatas/intezmenyek/korm

Chart 11. The division of Hungary into the NUTS-II regions



County governments (NUTS III level)

For public administration purposes, Hungary is divided into 19 counties and the capital city; Budapest is divided into 23 districts. Main public administration units: the capital city, counties, towns and villages. In addition to the 19 counties, Hungary also has 23 cities with the same rank as counties: the county seats and Sopron, Nagykanizsa, Dunaújváros and Hódmezővásárhely. The Act LXV of 1990 contains the most recent regulations on the rights and competence of public administration units. Budapest and its 23 districts are governed by a separate Act.

The responsibilities of the county governments include among others:[22]

- provision of secondary- level education institutions, if the relevant local government does not undertake the provision of such institutions,
- health services that exceed the level of basic service provision, if the relevant local government does not undertake the provision of that service/institution.
- selected social responsibilities, coordination of social services in the relevant geographical area, protection of children's rights,
- certain cultural and environmental responsibilities.

Counties do not have their own revenues, nor do they have special taxes as do the local governments. They are funded from the central level.

NUTS IV level

On the NUTS IV level, the local governments are encouraged to gather into and form a "complex small regional association" (Többcélú kistérségi társulás), where certain administrative functions are merged into one institution by the cooperating local governments. This could move one step further in reducing the overlap among the responsibilities of the 3,135 local governments.

[22] http://www.magyarorszag.hu/kozigazgatas/intezmenyek/onkig/megyonk

Local governments

The bodies of local representatives are headed by mayors and deputy mayors. The bodies of the representatives have independence in local governance, local legal ruling and administration. They have their own income from different local sources such as taxes, but they are supported from central sources as well. They are entitled to issue local decrees. Their duties include elementary education healthcare, social support, safeguarding the rights of national and ethnic minorities, founding local titles and awards.[23] Mayors and representatives are directly elected by local residents.

I.2. Reform measures in public administration

Regarding the sectoral policies, two key reform measures for the administration have influenced eGovernment development: the 1128/1994 (XII.30) Government Decree on the preparation of the public finance reform and the 1105/1995 (XI.1) Government Decree on the reform of the territorial administration organisations. A third additional decree was the 1062/1996 (VI.4) Government decree on the task division related to the public sector reform.

These three decrees together worked out a reform concept that divided the obligations, rights, tasks and responsibilities related to the healthcare system, the pension system and social security among the various levels of government; ordered the responsibility system regarding the education system, and finally; regulated tax and contributions policy and its relations to the central budget and the local governments.[24]

Box 1. Key administrative reform measures in Hungary

1994:	1128/1994 (XII.30) Government Decree on the preparation of the public finance reform
1995:	1105/1995 (XI.1) Government Decree on the reform of the territorial administration organisations
1996:	1062/1996 (VI.4) Government decree on the task division related to the public sector reform

Source: Elektronikus Kormányzat Központ (EKK): *Strategy and legal background of the eGovernment Strategy*

I.3. The Hungarian healthcare system

The Hungarian healthcare system has three main institutional sectors: the **Ministry of Health**, the **National Health Insurance Fund Administration** (NHIFA) and **the municipalities**.

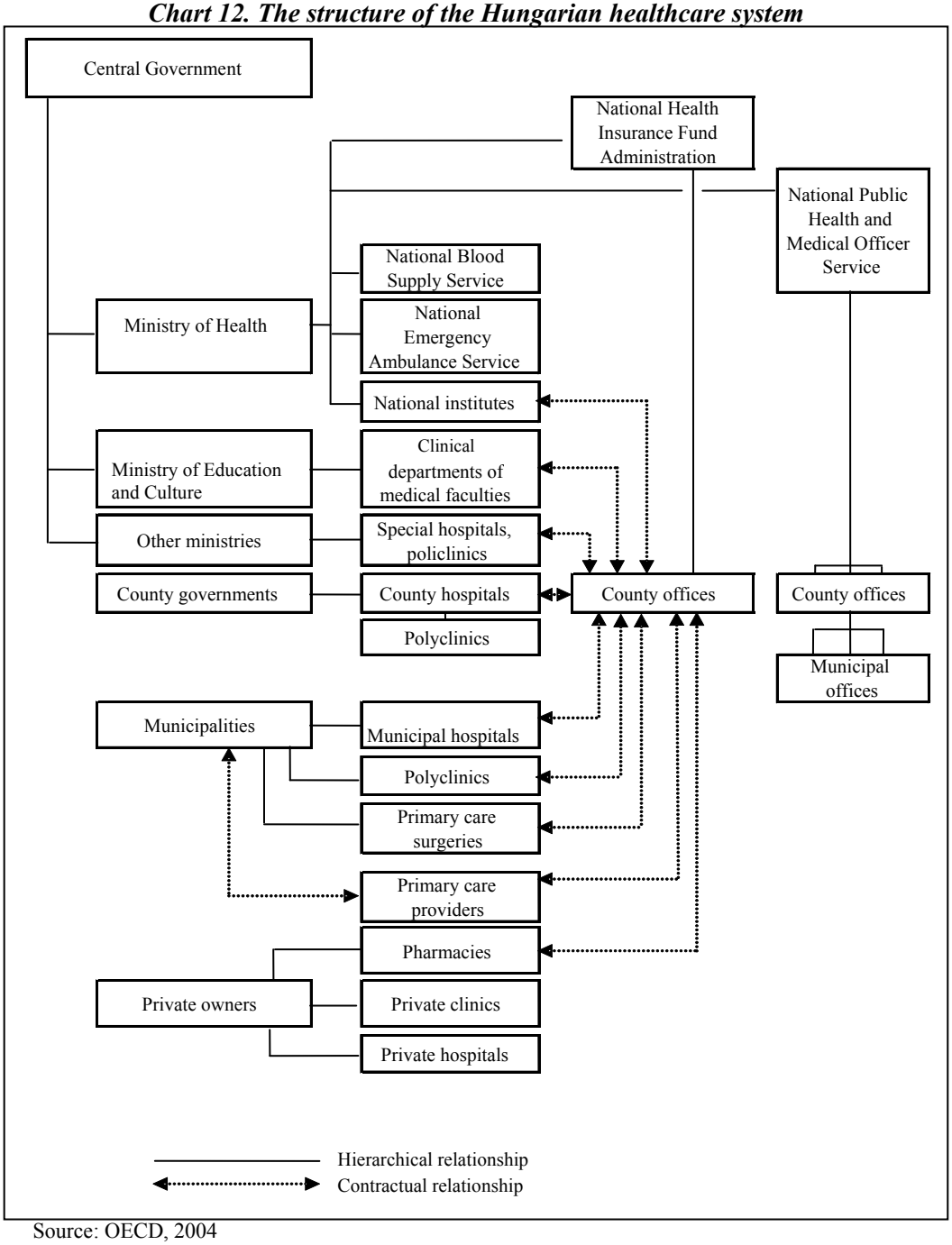
The **Ministry of Health** plays a key role in the areas of policy formulation, co-ordination and regulation. The Ministry oversees a number of bodies that provide services outside the contracting system supervised by the NHIFA,[25] such as emergency ambulance services and care for the elderly, and rehabilitation services. One of the most important institutions is the National Public Health and Medical Officer Service (NPHMOS), whose responsibilities include control and regulation of healthcare, including licensing and professional supervision of healthcare institutions (hospitals and general practitioners' practices). In addition to its regulatory and coordination role the Ministry of Health is the ultimate owner of several institutions of vital importance including the National Blood Supply Service and the National Emergency Ambulance Service. Moreover, some of the national institutes are owned or supervised by the Ministry, widening its area of responsibility and intervention.

[23] http://www.magyarorszag.hu/kozigazgatas/intezmenyek/onkig/testonk

[24] Elektronikus Kormányzat Központ (EKK): *Strategy and legal background of the eGovernment Strategy*, http://www.meh.hu/szervezet/hivatalok/ekk/ekormanyzat/dokumentumok/estrat20050708.html

[25] NHIFA supervises the healthcare institutions and the services provided by them. The NHIFA forms a contractual relationship with the primary and other health service providers and funds their activity through a German type point system from the social security contributions collected from employers and employees.

Chart 12. The structure of the Hungarian healthcare system



Source: OECD, 2004

The **NHIFA** provides financing for healthcare services by buying the services from the public and private suppliers and by financing them from the collected contributions and fees. From the time of its establishment in the early 1990s the NHIFA remained independent until 2001, when it was placed under the supervision of the Ministry of Health. The NHIFA maintains its headquarters in Budapest and numerous county offices and engages in contractual relations with both private and public providers of healthcare services ranging from pharmacies and family doctors to big municipal hospitals and clinics.

The **municipalities** are the third institutional sector, which has regional responsibility for providing healthcare services and to which most hospitals and clinics belong. The municipalities generally own the municipal hospitals, primary care surgeries and polyclinics, and contribute to their capital spending and maintenance expenditures, while operating expenditures are covered by the NHIFA.

Municipalities also engage in contractual relations with private providers, which has increasingly been present in several healthcare services.

The **public sector**[26] is the key player in healthcare provision. In addition to local governments, the churches and other caritative institutions, public sector institutions own health facilities (such as clinics and hospitals), are responsible for capital investments, and are involved in contractual relationships with the NHIFA. Some ministries (for example the Ministry of Defence among others) own hospitals (often the largest ones), other healthcare units and institutions. In addition to being sometimes the ultimate owner, the municipalities and county governments are responsible for ensuring that all residents have access to the healthcare services.

The contribution of the **private sector** has remained limited although it has expanded progressively in recent years driven by the legal provisions allowing private services to operate adopted already in 1990. Private sector contribution and private provision is now used in a significant proportion of outpatient care. Contracts set up by the NHIFA involve a number of private service providers: family doctors; suppliers of outpatient equipment and office spaces; pharmacies; and specialised medical providers. The presence of these private providers has contributed to increases in the amount of non-subsidised private spending on health: about half the total outpatient spending is either in this form of health spending or in co-payments for subsidised drugs or "gratitude money".

Outside these services there are only a small number of privately owned clinics, run generally by medical professionals who also work part-time in the public system. The clinics' services are in fact mostly used by foreign residents and by wealthier Hungarians as supplementary services to the public healthcare system.

Hungary has a **comprehensive insurance-type healthcare system**, based on the principle of social solidarity in which compulsory contributions by employees are paid according to earnings, rather than individuals' health risks. Coverage is close to universal in terms of treatments provided, with virtually all citizens benefiting from the service whether they contribute or not. The system operates under a purchaser-provider approach in which the services are financed primarily through the Health Insurance Fund (HIF) run by the NHIFA. Based on the purchaser-provider system, the **services are financed by the NHIFA**. The Fund receives healthcare contributions from employers and employees: in the case of deficit the missing funding is covered by transfers from the central government budget. The Ministry of Finance prepares the health budget of the HIF in consultation with the NHIFA; subsequently the budget, plus the insurance premium expected to be paid, is accepted by Parliament. The fund is used to finance the majority of current (but not capital) spending on healthcare services, as well as general subsidies on prescription drugs.

Capital spending, certain services (such as ambulance services and high tech interventions) along with education facilities for training healthcare workers (e.g. medical universities) are funded directly by the state. The state also subsidises the cost of drugs by providing subsidies to those on a low-income to help them cover co-payments.[27]

Healthcare providers are reimbursed under various payment formulas:

- Family physicians are paid for primarily by a flat per-patient capitation fee, adjusted for the qualification of the practitioner and the age of the patient.
- Outpatient treatments are paid through a German-style '*point-system'*
- Hospital-care is reimbursed according to a Homogeneous Diseases Groups (HDG) system similar to the USA system.

[26] The public ownership is executed by the municipalities, counties and national government institutions (ministries).

[27] The subsidy is a lump sum amount provided by the central government, representing a certain part of the drug's price. The subsidies provided by the state for drug use are covered from above open sub-funds, which finance all the emerging expenditures. As a result of this there is an over consumption of drugs, and a shift towards the prescription and use of more expensive and more supported drugs and thus a constant deficit in the Drug Fund

I.4. Reform measures in the healthcare sector

The evolution of the healthcare sector has been determined in recent decade by various challenges. One of them has been the worsening demographic trends and state of health of the Hungarian population.[28] Most of the major healthcare indicators (such as health adjusted life expectancy, death rates and major illnesses) have deteriorated in recent years. The deterioration in healthcare has been accompanied by an increasing demand for drugs and healthcare services, which combined with the generally observed increase in healthcare costs has led to an expenditure explosion.

Cost containment has thus remained one of the key challenges, especially as public ownership of healthcare institutions, frequently modified regulations and incentive structures weakened the responsibility of service providers in reducing cost explosion. The final major challenge has been the unsolved ownership and related financing issue: the healthcare insurance fund covers only current operating expenditures, while capital expenditures are financed by the owners of the institutions. This led to a rapid deterioration in the quality of healthcare services, and to a lack of investments in the healthcare sector.

These challenges resulted in various attempts at reforming the healthcare system: the box below summarizes the major reform measures implemented in the last decade. First, considering the financial difficulties, the reforms aimed at creating a better incentive system for the healthcare units to spend expenditures in a more efficient way. The reforms have also focused on the revenue side and their objective was to increase and more efficiently distribute the burden of financing healthcare among taxpayers.

The major steps in this area were the elimination of the universal entitlement to healthcare and the definitions for the eligibility allowing for the transfer of the system from citizenship to insured based healthcare provision, the establishment of the Health-Insurance Fund and various voluntary mutual health insurance funds, changes in the social security contributions paid by employees and employers, introduction of various other forms of payment and co-payment by the private sector.

A further area of reforms was the changes in the ownership structure by allowing privatisation of certain healthcare services and the emergence of private providers in certain professions. While most of the basic institutions (hospitals and clinics, major national healthcare units) have remained in public ownership, the private sector increased its role in certain health professions, and services (such as the family doctor system) are fully privatised.

Several measures were introduced in 2004 to speed up the modernisation of hospital care and to encourage the provision of higher quality rehabilitation services. In particular, the professional certification system has been rationalised and financial incentives to rehabilitation activities have been introduced, together with the launching of an ambitious hospice programme. When allocating surplus resources providers are encouraged to give priority to rehabilitation care and day-to-day treatments.

Finally, the reform measures have also been designed to rationalise the institutional structure by merging several institutions, by limiting the scope for further institutional expansion and by reducing the overspending in certain critical areas (such as the number of hospital beds and the nights spent hospitalised).

[28] The health adjusted life expectancy in Hungary is 10 years lower than the average of EU15, the number of cardiovascular deaths per 100,000 is higher by 250 than in the EU15 and by 15 in the EU10, of cancer by 100 and 50 respectively, of digestive diseases by 45 and 35 respectively, but other indicators (diabetes, people with serious weight problems) also show the population's state of health..

Box 2. Summary of major healthcare reform measures in Hungary between 1990-2005

1990:	Switch from tax-based funding to compulsory insurance. Ownership of health facilities transferred to local governments except the major hospitals and clinics remaining in the direct ownership of the state through the branch ministries
1991:	Establishment of the National Public Health Service (responsibility for local hygiene stations transferred from local governments).
1992:	Social insurance fund divided into a Pension Fund and a Health-Insurance Fund. Universal entitlement to healthcare eliminated by Parliament and conditions for eligibility defined allowing for the transfer from the citizenship to insured based health are provision. Family doctor network created, allowing free choice for patients; capitation-based payment introduced.
1993:	Voluntary Mutual Health Insurance Fund (supplementary insurance operated by private non-profit institutions) authorised. Outpatient-care remuneration based partly on a fee-for-service scheme introduced. Hospital-care remuneration on an HDG-type scheme introduced.
1994:	New National Health Promotion Strategy adopted by the Government.
1995:	Hospital capacity reduction programme initiated, with a reduction of almost 20,000 hospital beds in the period to 1997.
1996:	Restoration of universal entitlement to healthcare.
1997:	Act on Healthcare.
1998:	Abolition of the Health-Insurance Self-Government.
1999:	Pilot projects on managed care launched.
2000:	Privatisation of the practices of general practitioners introduced.
2002:	50% wage increase for healthcare employees working as civil servants approved (effective in 2003).
2004:	New spending rules set up for hospital and pharmaceutical subsidies to avoid expenditure overruns implemented.
2005:	As a part of the 100 steps programme the Government adopted 22 measures the objective of which was to reform the financing of healthcare expenditure

Source: OECD, 2004, ESKI,[29] 2006

However the reform measures have proved insufficient and unable to reverse the challenges in the forefront of the healthcare system. Several basic elements are currently intensively being debated, including:

- The role of public and private sectors in the provision of healthcare services
- In-depth rationalisation of the institutional structure, changes in the number and territorial distribution of healthcare units and institutions, the shift in outpatient and hospitalised healthcare treatments
- A decision on whether to maintain the single insurance provider funded healthcare system or to shift towards a multiple private insurance companies based insurance framework

Finally, the reform discussions are also focusing on the reduction of the existing regional disparities in service provision and quality, as there are significant regional differences. The availability of various hospital facilities is outstanding in Budapest, compared to the rest of the country, and the health status of its residents is above the average. The regional differences in healthcare provision are affected by other regional disparities, such as infrastructure, disparities of average health status, and disparities of the average age of population residing in various types of settlements (big cities, small villages, etc).

[29] National Institute for Strategic Health Research (Egészségügyi Stratégiai Kutatóintézet)

II. E-GOVERNMENT AND E-HEALTH DEVELOPMENTS IN HUNGARY

II.1. Major actors and institutions in eGovernment and eHealth

II.1.1. The major policy players responsible for eGovernment

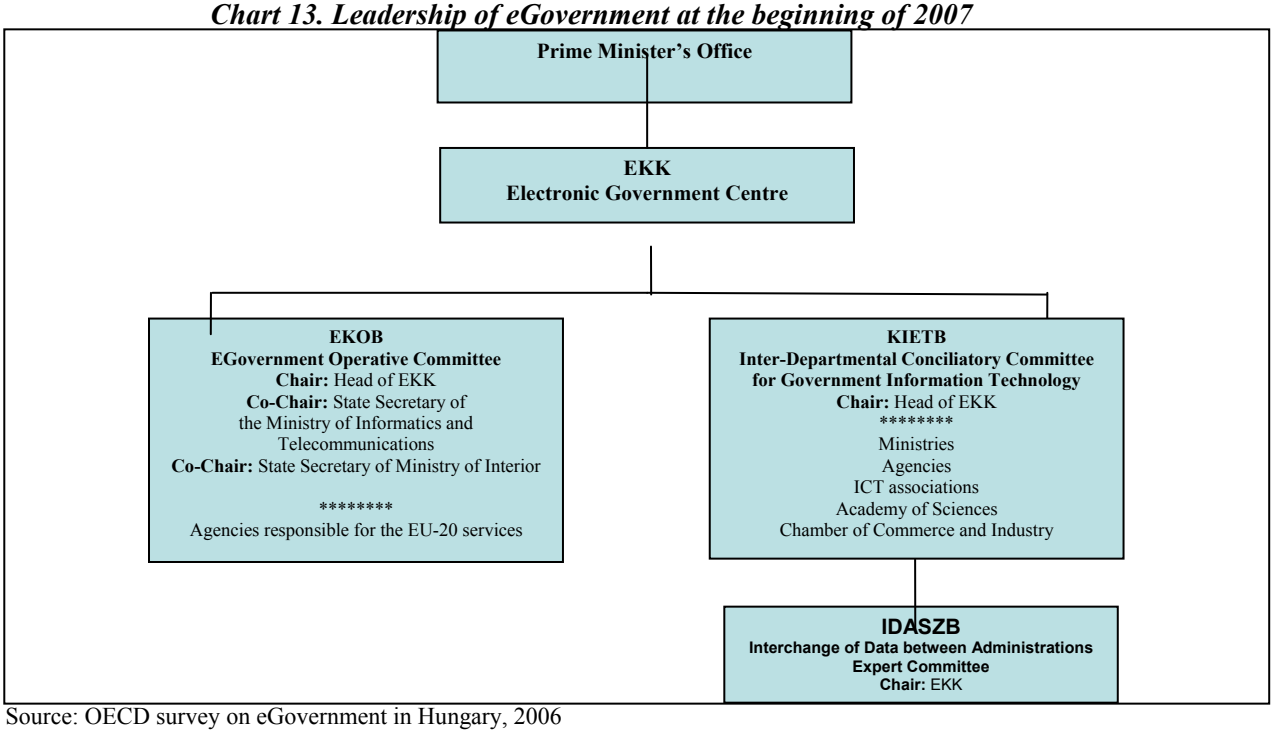
The current structure of eGovernment responsibilities emerged after the elections held in May 2006 as both the governmental structure and the responsibilities of the ministries changed in June 2006. Most importantly, the former Ministry of Informatics and Communication (IHM) was dismantled and its IS related responsibilities were transferred to the Ministry of Economy and Transport and to the Electronic Government Centre (EKK) within the Prime Minister's Office.

Under the aegis of the Prime Minister's Office the Electronic Government Centre (EKK[30]);[31] the Central Data Processing, Registration and Election Office; the Government Office for Frequency Management and the Telecommunication Service Office form a new Centre for Electronic Public Services.

The tasks of the former Ministry of Interior were transferred to two other ministries: most tasks were taken over by the Ministry of Local Government and Territorial Development established by the new government, while the monitoring of law enforcement was integrated into the Ministry of Justice and Law Enforcement.[32]

As a result of these changes the major policy players responsible for eGovernment are currently the Prime Minister's Office (Miniszterelnöki Hivatal, MEH, www.meh.hu), the Electronic Government Center (Elektronikus Kormányzat Központ, EKK, www.ekk.gov.hu), the Ministry of Local Government and Regional Development (Önkormányzati és Területfejlesztési Minisztérium, ÖTMH www.bm.hu) and two horizontal inter-government bodies, the KIETB or Inter-Departmental Conciliatory Committee for Government Information Technology (Kormányzati Informatikai Egyeztető Tárcaközi Bizottság) and the EKOB or the eGovernment Operative Committee (E-kormányzat Operatív Bizottság).

Chart 13. Leadership of eGovernment at the beginning of 2007



Source: OECD survey on eGovernment in Hungary, 2006

[30] Elektronikus Kormányzat-Központ.
[31] Governmental resolution 1054/2006 (V.26.).
[32] Act LV/2006 on the assignment of ministries of the Republic of Hungary.

a). Prime Minister's Office

According to the Government Decree 160/2006 (VII.28.[33]) the minister responsible for the Prime Minister's Office (MEH) is in charge of coordination, development and implementation of eGovernment at central, regional and local levels. As the main policy player, the Prime Minister's Office is responsible for the:

- Formulation of the public administration's IT strategy and policy.
- Supervision and co-ordination of the implementation of the eGovernment strategy.
- ICT support of the central government reform.
- Development of a concept for a citizen-friendly central government administration through modernisation of public services
- Development of rules and measures for collaboration of the public services.
- Co-ordination of programmes for preparing citizens to using central government services.
- Supervision and co-ordination of ICT in public sector administrations.
- eGovernment regulation.

b). Electronic Government Centre

The Electronic Government Centre (EKK) in the Prime Minister's Office (MeH) was accredited with the tasks regarding the informatics of the central government[34] by the Government Decree 148/2002 (VII.1.) on MeH. EKK is headed by a government commissioner ranked as secretary of state and is responsible for:

- facilitation of the informatics infrastructure of the central government
- supporting the establishment and proliferation of electronic public administration
- definition of the professional and quality requirements of applications
- ensurance of the way of usage and accessibility of the data of public interest within the scope of governmental informatics,
- surveying and developing public administration data sets and performing duties related to EU integration and other international liabilities

With the coordination of the MeH – EKK, eGovernment services are offered by certain ministries (educational, home, finance etc), and the government offices/agencies (such as the Tax Office: the APEH, the Central Statistical Office: the KSH, the National Health Treasury: the OEP, the National Police Headquarters: the ORFK etc).

c). Co-ordinating bodies

EKK exercises its leadership of central government eGovernment activities through two co-ordinating bodies:

- **The KIETB** or **Inter-Departmental Conciliatory Committee for Government Information Technology** (Kormányzati Informatikai Egyeztető Tárcaközi Bizottság) is a forum for inter-ministerial discussions of ICT issues of strategic importance for the central government[35] chaired by the Government Commissioner

[33] The decree states that "…. ICT usage in public sector administration is the means of realisation of the service providing state. It covers the organisational structures, resources and instrumental systems of information technological and info-communicational nature supporting a more effective service for citizens, more efficient operations, task completion and the modernisation of the public administration bodies."

[34] Central Government Informatics includes information systems applied by the ministries, and the institutions of the ministries with nationwide authorities. The appendix of the decree contains the definition.

[35] The KIETB formulates recommendations on important issues relating to ICT development within the government, as well as on other eGovernment areas such as management of Web sites, information security, technical specifications, quality management, etc. The Committee's latest recommendations were: unification of central government Web sites; publication of a manual on information security; identification of technical specifications for connecting to the Client

(Kormánymegbízott) of the EKK, while its members are the persons responsible for co-ordinating eGovernment issues in the ministries and agencies. The committee also had representatives from the Academy of Sciences, the Association of the IT Enterprises, the Association of the Content Industry, and the Hungarian Chamber of Trade and Industry, the Office of the Parliament[36] and the State Audit Office. Under the aegis of KIETB the IDA Expert Committee *(IDA Szakértői Bizottság)* were established to support and advise on Hungary's participation in the IDAbc programme.[37]

- **EKOB** or the **eGovernment Operative Committee** (E-kormányzat Operatív Bizottság) is responsible for co-ordinating the implementation of the Electronic Government Programme and the 20 eServices benchmarked by the EU. EKOB is chaired by the Government Commissioner. The committee consists of representatives from central government agencies responsible for the implementation and maintenance of the 20 eServices.

The strength of the institutional framework is the presence of the horizontal co-ordination structures of eGovernment, including broad involvement of stakeholders both within and outside government. The weakness of this is that co-ordination is limited to administrative and technical issues rather than political and strategic ones.

d). Ministry of Local Government and Regional Development

The Ministry of Local Government and Regional Development is in charge of overseeing electronic issues at the level of local governments.

II.1.2. The responsibility structure for eGovernment at the central and local/regional government levels

There are certain differences in the role of the individual institutions in the formulation and execution of eGovernment policies directed at central and local/regional government. In the case of the central government, eGovernment policy formulation and the coordination of the main strategies is carried out at the Prime Minister's Office with the special designated role given to the Electronic Government Center.

In the area of implementation the responsibility structure is more dispersed. The Prime Minister Office is responsible for the operation of the Central Electronic Service Provider System. At the same time there are various branch ministries, which supervise the functioning of the selected areas of eGovernment. Among them two are important: the Ministry of Economy and Transport, which is responsible for Information Society developments in general (after it took over most of the responsibilities of the former Ministry of Informatics and Telecommunication) and the Ministry of Local Government and Regional Development, which is the supervising authority of the almost 3,200 local governments in Hungary. In addition to the ministries other central public institutions are involved to the implementation of eGovernment: among them the most influential is the Hungarian Tax and Financial Control Authority, providing eGovernment Services concerning taxation.

Gate; elaboration of an information strategy by each governmental agency; articulation of general requirements for ICT contracts with governmental agencies; information on quality assurance and quality management relating to software development within the central government; and implementation of quality assurance and quality management for operation of ITC systems within the central government.

[36] The Office of the National Assembly ensures the organisation of the work of Parliament, assists its officials and, in certain areas, the work of the MPs, http://www.mkogy.hu/angol/office.htm.

[37] IDAbc stands for Interoperable Delivery of European eGovernment Services to public Administrations, Business and Citizens. It is a community programme managed by the European Commission's Enterprise and Industry Directorate General.

Table 9. The division of responsibilities among the major players in the formulation of eGovernment policies for the central government.

RESPONSIBILITY	ACTORS	FUNCTIONS
Policy /Strategy formulation, Coordination	**Prime Minister's Office** www.meh.hu	Cross-ministry and agency coordination Formulation of IT strategy policy of public administration. Responsibility for informatics in public sector
	Electronic Government Centre (Elektronikus Kormányzat Központ, EKK) at the Prime Minister's Office *http://www.meh.hu/szervezet/hivatalok/ekk*	Responsible for eGovernment, focuses on central administration
	Inter-Departmental Conciliatory Committee for Government Information Technology (KIETB) *http://www.meh.hu/szervezet/hivatalok/ekk*	Responsible for eGovernment only, working together with the EKK, harmonizing among the various players of eGovernment
	Operative Committee for eGovernment (EKOB) *http://www.meh.hu/szervezet/hivatalok/ekk*	Responsible for co-ordinating the implementation of the Electronic Government Programme and the 20 eServices benchmarked by the EU (expected to be merged with the KIETB)
	Interministerial Committee on Information Society (ITKTB) *www.itktb.hu*	Provides advice on various Information Society-related policies, although the policies are formulated/finalised by either the Electronic Government Centre or by the Ministry of Informatics and Communications
Implementation, Service provision	**Prime Minister Office** *www.ekk.hu*	The Prime Minister Office is responsible for the operating of the Central Electronic Service Provider System. Further services: Electronic Government Backbone, Governmental Portal, Government Customer Information Centre and Client Gate – see details in subchapter II.5.
	Central Office for Administrative and Electronic Public Services (established on the basis of Central Data Processing, Registration and Election Office) *www.nyilvantarto.hu*	Responsible for implementing tasks in relation to public administration, elections, crime prevention and jurisdiction, as well as for the handling and processing of data related to the abovementioned areas. It is responsible for the issuing of documents, IT development required for public administration activities, and the operation of the Central Document Office. It provides the opportunity and the related services for electronic administration, and operates the Information Phone Service supporting the e-administration
	Ministries	Most importantly: **Ministry of Economy and Transport**, which is responsible for Information Society in general and the **Ministry of Local Government and Regional Development**.
	Hungarian Tax and Financial Control Authority *www.apeh.hu*	Providing eGovernment Services regarding taxation.
Audit	**Hungarian State Audit Office** *www.asz.hu*	Audit organisation (independent from the government) responsible for the audits of public expenditure, based on the criteria of legality, effectiveness and efficiency
Data Protection	**Parliamentary Commissioner for Data Protection and Freedom of Information**	Responsible for the 1992 Act on Protection of Personal Data and Disclosure of Data of Public Interest that defines the guarantees regarding the processing of personal data by public and private bodies

In the case of local or regional governments the Policy /Strategy formulation and Coordination are the responsibility of the Ministry of Local Government and Regional Development (former Ministry of Interior) which is responsible for overseeing electronic case handling at local government level. Another important stakeholder was the Ministry of Economy and Transport, which was responsible for the execution of the relevant Operational Programme within the Structural Funds disbursement in the period 2004-2006.

In the implementation and service provision the main role is assigned to the regional and local authorities which design and implement local eGovernment services At the same time there are various other stakeholders, especially the regional or local government associations such as the National Association of Local Government of Settlements (Települési Önkormányzatok Országos Szövetsége –TÖOSZ) or National Association of County General Assemblies (Megyei Önkormányzatok Országos Szövetsége – MÖOSZ), which have an influential impact on the implementation of local/regional governments related policies.

Table 10. The division of responsibilities and tasks in regional/local eGovernment issues

RESPONSIBILITY	ACTORS	FUNCTIONS
Policy /Strategy formulation, Coordination	**Ministry of Local Government and Regional Development** (former Ministry of Interior) *www.bm.hu*	Responsible for overseeing electronic case handling at local government level
	Ministry of Economy and Transport, *www.gkm.hu*	Responsible for relevant OP of the Structural Funds 2004-2006.
Implementation, service provision	**Regional and local authorities**	Design and provision of local eGovernment services.
Audit	**Hungarian State Audit Office** *www.asz.hu*	(see above)
Other players	**National Association of Intelligent Local Authorities** (Intelligens Települések Országos Szövetsége – ITOSZ www.itosz.hu),	Promoting cooperation between local authorities in the field of ICT and information management
Other players	**National Association of Local Government of Settlements** (*Települési Önkormányzatok Országos Szövetsége –TÖOSZ*) www.toosz.hu/indexn.html **National Association of County General Assemblies** (*Megyei Önkormányzatok Országos Szövetsége – MÖOSZ*) *www.moosz.hbmo.hu* **Association of Towns with County Status** (*Megyei Jogú Városok Szövetsége – MJVSZ*) *www.mjvsz.hu* **National Association of Small Town Governments** (*Kisvárosi Önkormányzatok Országos Érdekszövetsége – KÖOÉS)*, *www.kisvarosok.hu* **National Association of Local Governments of Parishes, Small Settlements and Micro Regions** (*Községek, Kistelepülések és Kistérségek Országos Önkormányzati Szövetsége – KÖSZ*) *www.koesz.helyinfo.hu/gss/alpha* **Association of the Hungarian Local Governments** (*Magyar Önkormányzatok Szövetsége –MÖSZ) www.gemesigyorgy.hu/mosz.php*	Players representing Hungarian municipalities, as professional lobby groups

II.1.3. The major institutions responsible for eHealth

Regarding the provision of services, the major central institutions that provide eHealth services supervised by the Ministry of Health are the following:

- The National Public Health and Medical Officer Service (Állami Népegészségügyi és Tisztiorvosi Szolgálat), www.antsz.hu, which has recently launched its new portal, mostly providing information but no sophisticated eService
- The National Health Insurance Fund (Magyar Egészségbiztosítási Intézet), www.oep.hu, which provides various eHealth services including information, available database of insurance cards, and downloadable forms
- The Hungarian National Ambulance and Emergency Service (Országos Mentőszolgálat), www.mentok.hu; which provides mainly information
- The National Blood Supply Service (Országos Vérellátó Szolgálat) – www.ovsz.hu;
- Medical institutes (hospitals, medical centres, convalescent hospitals) with websites providing mainly information but no online services
- National medical institutes (such as National Institute of Children's Health (Országos Gyermekegészségügyi Intézet – www.ogyei.hu**; the** National Association of Dentists (Magyar Fogorvosok Egyesülete), providing information through their websites
- The National Institute for Strategic Health Research (ESKI, Egészségügyi Stratégiai Kutatóintézet) which provides eHealth services and also makes an important contribution to eHealth policy formulation.

Table 11. The major actors responsible for eHealth in Hungary

RESPONSIBILITY	ACTORS	FUNCTIONS
Policy /Strategy formulation, Coordination	**Ministry of Health** *www.eum.hu*	Responsible for health policy and strategy
	Electronic Government Centre *www.ekk.hu*	Responsible for eGovernment, focuses on central administration
Implementation, service provision	**National Health Insurance Fund Administration** (NHIFA) *www.oep.hu*	Responsible for handling the Health Insurance Fund, tasks related registration, data providing and finance
	Central hospitals, clinics	
	Clinics and hospitals belonging to the municipalities	
Audit	**Hungarian State Audit Office** *www.asz.hu*	(same as above)
Other players	**National Institute for Strategic Health Research**, former MEDINFO (Deed of Foundation of the National Institute and Library for Health Information), *www.eski.hu*	Coming under the scope of the Ministry of Health, provides eHealth information services but also carries out strategic research and presents policy advice.
	Hungarian Medical Informatics Association	Established in the early 90s, and has assumed a major role in the modernisation of the IT field. The two associations have held their annual conferences in turns since the 80s, with 100-150 participants.
	Biomedical Section of the John von Neumann Computer Society *www.njszt.hu*	Established in 1968. The Section is a member of several international organisations, such as the International Medical Informatics Association, IMIA and the European Federation for Medical Informatics, EFMI

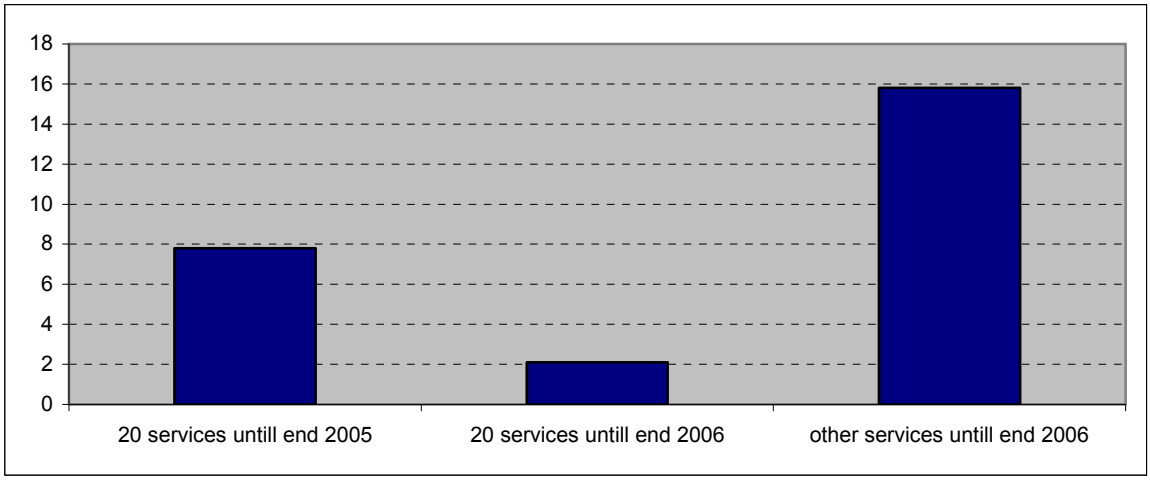
Primary care and other hospitals generally belong to the municipalities and provide only a low level of eHealth services, mostly basic information on a webpage. In the area of eHealth, private initiatives occur mostly in the field of information provision: several health-related portals and information services are run by various private content providers.

II.1.4. The funding of eGovernment and eHealth

According to a survey conducted by EKK in 2004 and in 2005, 877 projects were realized for the informatisation of public administration. During the two years approximately 100 Bn HUF (0.4 billion EUR) were spent on eGovernment in central and regional public administrations. Most of the budget was devoted to the purchase of ICT tools, hardware and system development; in comparison to this, spending for website and content development and operation was low.

There is currently an ambitious programme for deepening and broadening the 20 eGovernment services, which requires significant expenditures from the general government institutions. The development has been coordinated by the Prime Minister's Office and the major public institutions have been participating in it, among them primarily the Ministry of Local Government and Regional Development (which has the responsibility and oversight over the central public administration and the local and county governments), the Ministry of Finance (which has responsibility over the State Tax Authority) and the Ministry of Justice (which has responsibility over legal aspects).

Chart 14. The current and expected costs of developing the 20 eGovernment services in millions of Euro



Source: Prime Minister's Office, 2006

As the chart above shows the costs related to the development of the 20 services reached 10 million Euros in 2005-2006 and are mainly related to the expenditures of the State Tax Authority. The tax authority had two major programmes in these years: one was the switch to an electronic declaration of personal income, corporate income and value added taxes in 2005, and the second currently running programme is on the documentation of monthly tax declarations.

The various ministries spend significant resources on the development of the 20 eGovernment services, which are ensured by the Prime Minister's Office's budget. 60% of the support has been provided for the Ministry of Local Government and Regional Development.

Since special funding for eGovernment activities has not been set up, developments of eGovernment are funded mainly by the organisations' own budget. Until June 2006, the Ministry of Informatics and Telecommunication provided Information Society budgets. Another budget for the maintenance of the 20 eGovernment services has been earmarked.

As eGovernment initiatives tend to be funded mainly by organisations' own budgets, no overall government principles have been established to fund eGovernment projects with cross-cutting impact; this brings into focus the imbalance of the eGovernment "sow-harvest" dilemma,[38] which could

[38] This dilemma reflects the aspiration of the government to spend as much as possible from the available funding with the intention of maximising the number of recipients without giving due consideration to efficiency.

increasingly become an issue when efficiency and effectiveness considerations are better understood and integrated into public sector institutional management.

In the period 2003-2005, education and training represented only 1%, consulting 3%, and project management 2% of the total amount spent on eGovernment development and operations by the central government; the proportion of hardware expenses was 49%, and that of software expenses was 26%. The EKK budget represented only 5%, or HUF 15 billion, of the total budget of HUF 300 billion spent by central government on eGovernment development. The proportion of central governmental bodies' ICT budget was 47% while the total amount spent by the former Ministry of Informatics and Telecommunications on different sector-oriented programmes represented 40%. The remaining 8% was distributed through the Economic Competitiveness Operative Programme (GVOP[39]). The GVOP is one of five overall operative programmes of the Hungarian National Development Plan relating to the 2004-2006 programmeming period; it includes some projects implemented by the Information Society Public Benefit Company[40] to support local eGovernment development.[41]

According to an OECD survey[42] the main budgetary challenge identified by 81% of the respondents is the lack of organisational resources (*e.g.* budget). The second barrier according to 71% of respondents is the lack of long-term budgeting horizons for multi-year investments.[43] The next constraint (50% of respondents) is the lack of dedicated eGovernment funds and, in cases where they exist, the lack of their efficient distribution to facilitate positive impact on eGovernment.[44] Finally, the use of CBA (cost-benefit analysis) in eGovernment projects is limited prior to decisions.[45]

Some IT projects (like eAdministration) are launched and realized by the central government in the form of government developments and investments, thus demonstrating how administration could become quicker, cheaper and more effective via electronic devices. These projects are financed directly from the national budget.

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39 Electronic Government Centre of the Prime Minister's Office (EKK) (2006), *Az e-Kormányzat Stratégia jövőbeni koordinálási feladatai* (Future tasks of co-ordinating the eGovernment Strategy), March 2006, pg. 31.

40 *Információs Társadalom Közhasznú Társaság (IT Kht)* owned and supervised by the former IHM – the Ministry of Informatics and Telecommunications

41 Ministry of Economy and Transport website (2006), http://www.gkm.gov.hu/, accessed in July 2006.

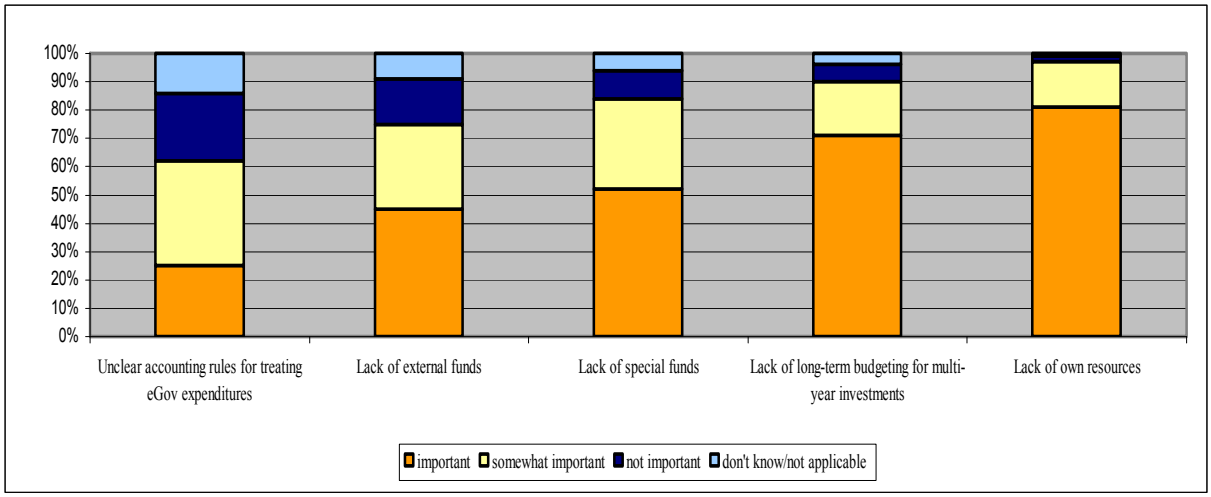
42 OECD survey on eGovernment in Hungary, 2006

43 The discrepancy between short-term budgetary horizons and long-term investments was also mentioned as a barrier by OECD interviewees. This is, however, not unique to Hungary, as most OECD countries face the same kind of challenges concerning long-term budgeting of eGovernment investments.

44 As an example EU funding for local eGovernment projects in the framework of GVOP was carried out without maximising synergies between local eGovernment activities and led to uncoordinated and unharmonised developments.

45 This is due, to the lack of methodology of CBA measurement of eGovernment and absence of incentives to achieve savings through projects

Chart 15. Importance of budgetary barriers to eGovernment implementation (% of respondents)



Source: OECD survey on eGovernment in Hungary, 2006

The role of EU funding

On the other hand, many major initiatives in both domains were financed from the Structural Funds during the 2003-2006 periods, and it can be expected that such eServices development will rely even more on Community financing between 2007-2013. There are several reasons that push policy makers towards this direction, most importantly:

- the lack of national financing (and even the Structural Funds require co-financing therefore funds for development are in extremely short supply),
- the capability to absorb Structural Funds - especially among the smaller players, civil organisations, SMEs - is an ongoing problem in Hungary just as in some other New Member States, and the issue of absorption versus efficiency is still not solved appropriately
- the nature of the Structural Funds is in favour of such development projects. Its structure allows for harmonised development, and its requirement for various stages of evaluation (ex-ante, ongoing, etc) and monitoring can force the relevant players to adopt a stricter development approach.

In the period of 2003-2006, development resources provided by the EU for local eGovernment applications were/are provided through the funding scheme of the Economic Competitiveness Operational Programme (GVOP). The table below summarises the local eGovernment projects supported by GVOP.[46]

[46] As mentioned earlier, in 2004 and in 2005, 877 projects were realised for informatisation of public administration with a total spending reaching approximately 100 bn. HUF (0.4 billion EUR). Most of these investments were funded from national sources as the (n+2) year principle in spending EU funds and the initial slow pick up with applications and decisions meant that the amounts indicated in the table became eligible for disbursement in 2006-2007.

Table 12. Summary of the GVOP projects and the available resources (between 2004-2006)[47]

Budget line	Project title	Total allocation (2004-2006) Million HUF (Million EUR)	No .of applications received	Projects granted	
				Number of projects	Million HUF (million EUR)
GVOP-4.2.2	Developing content industry and content services of public interest	1,544.5 (5.9)	52	5	924.5 (3.6)
GVOP-4.3.1	Developing the information services of local governments	11,054.1 (42.5)	56	29	11,053.3 (42.5)
GVOP-4.3.2	Secondary use of data files at the local governments	1,894.4 (7.3)	41	17	1,873.4 (7.2)
GVOP-4.4.1	Supporting the launch and realization of broad band Internet service in underdeveloped regions of Hungary	1,501.8 (5.8)	41	17	989.7 (3.8)
GVOP-4.4.2	Encouraging local governments to construct broad band Internet access, especially in the underdeveloped regions	10,504.1 (40.4)	118	5	1,130.0 (4.3)
Total		**26,498.9 (101.9)**	**308**	**73**	**15,971 (61.4)**

In the previous budget cycle there was some funding provided for eHealth developments, but its amount remained limited. Some eHealth projects run under the Action 4.4 of HEFOP (Human Resources Operative Programme of the NDP I), most importantly the development of eHealth systems in the underdeveloped regions of Hungary. The initiative had three main components:

- to design protocols and standards for interoperability of the electronic data and services of the various regional players in the health and social care services
- the modernisation of the individual systems of each institution, including LAN, integrated medical and financial information systems
- special training to raise the ICT literacy of the staff

Regarding the specific eHealth services, the initiative focused on eMedical Records, eConsultation and ePrescription. Altogether the total budget of the initiative was modest at just 4.050 million HUF (approximately 16 million EUR).

II.1.5. Monitoring eGovernment and eHealth developments

Management of eGovernment Implementation

Forthright leadership, operational management and feedback mechanisms such as monitoring and evaluation systems are insufficiently developed within the public sector in Hungary, which runs against the efficient and long-term focus driven development of eGovernment services.

[47] The values in the table refer to cost of the projects funded directly from the Structural Fund component

Monitoring and evaluation

Within the framework of the National Statistical Data Collection Programme (*Országos Statisztikai Adatgyűjtési Programme - OSAP*), the Central Statistical Office (*Központi Statisztikai Hivatal - KSH*) collects ICT-related data[48] from public institutions.

The eGovernment Strategy and Programme[49] was the first strategic initiative aimed at reforming the public administration based on a modern managerial approach. The plan included programmes and areas of action managed by the EKK, which applied monitoring to its implementation. The EKK continuously evaluated achievements of the actions prioritised by the various programmes in the eGovernment strategy. In Hungary public sector institutions with limited experience in monitoring activities lack guidance, and evaluation results are not comparable.

In November 2005, monitoring was launched to follow the Act on Administrative Procedures (Ket) by the former Ministry of Justice and the former Ministry of Interior. The goal is to monitor the impact of the Ket on users (citizens, businesses) and suppliers (government administrations), and to assess its contribution to efficiency gains.

Since many eGovernment services are run under the Economic Competitiveness Operative Programme financed from EU Structural Funds within the framework of the National Development Plan, with the responsibility of the Ministry of Economy and Transport, data and monitoring also belongs there. Both in the case of eGovernment activities and eHealth developments interim evaluation results are still in process.

To summarize, there is in Hungary a monitoring and evaluation of the implementation of eGovernment strategy, but it is one that does not define a common public sector approach to monitoring and evaluation. As a result, central government has no means of monitoring implementation, and public sector institutions lack guidance.

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

II.2.1. The eGovernment strategy

There is a long history of the evolution of policies and related legislation concerning electronic government in Hungary. The table below presents the policy and strategic documents relevant for eGovernment, highlighting the key pieces.

[48] Hardware and software usage of government institutions, their investment in ICT, their telecommunication and Internet expenditures, the bandwidth of their Internet connections, the ICT skills of employees, and the sophistication of the e-services.

[49] Electronic Government Centre of the Prime Minister's Office (EKK) (2004), *eKormányzat 2005 Stratégia és Programmeterv* (2005 EGovernment Strategy and Programme), 26 January 2004, http://misc.meh.hu/binary/6392_letoltheto_strategia_rovat_ekormaynzat_strategia.pdf.

Table 13. Information Society and eGovernment strategies and action plans[50]

Year	Policy and strategy documents	Responsible public authority for preparation
1995	National Information Strategy (*Nemzeti Informatikai Stratégia - NIS*)	NIS Preparatory Committee (*NIS Előkészitő Bizottság*)
1999	Hungarian Response to the Challenges of the Information Society (*Magyar válasz az információs társadalom kihívásaira*)	Prime Minister's Office (*Miniszterelnöki Hivatal - MeH*)
2000	Thesises on the Information Society (*Tézisek az információs társadalomról*)	Prime Minister's Office (*Miniszterelnöki Hivatal - MeH*)
2000	Hungarian Informatics Charter (*Magyar Informatikai Charta*)	Inforum (*Interest Reconciliation Forum of Informatics - Informatikai Érdekegyeztető Fórum*)
2001	National Information Society Strategy (*Nemzeti Információs Társadalom Stratégia - NITS*)	Office of the Government Commissioner for ICT (*MeH Informatikai Kormánybiztosság)*
2001	NITS Electronic Government Programme (*NITS Elektronikus Kormányzat Programme - EKP*)	Office of the Government Commissioner for ICT (*MeH Informatikai Kormánybiztosság*)
2003	Hungarian Information Society Strategy (*Magyar Információs Társadalom Stratégia - MITS*)	Ministry of Informatics and Communications (*Informatikai és Hirközlési Minisztérium – IHM*)
2003	EGovernment 2005 Strategy and Programme (*eKormányzat 2005 Stratégia és Programmeterv*)	Centre for Electronic Government of the Prime Minister's Office (*MeH Elektronikus Kormányzat Központ – EKK*)
2005	National Broadband Strategy	Ministry of Informatics and Communication (*Informatikai és Hirközlési Minisztérium – IHM*)

Source: *E-Kormányzat 2005 – Az e-kormányzat stratégia programmeozása* (eGovernment 2005 – Programmeming of the eGovernment strategy), 26 January 2004. EKK, Budapest, p. 5.

The key document in the list above is the eGovernment Strategy, strongly influenced by the Hungarian Information Society Strategy (MITS), which[51] was influenced from two evident directions: public sector policies and information society policies. The third direction of influence is represented by the Structural Funds, since in the frame of the National Development Plan I. (2004-2006) and II (2007-2013) significant sources have been earmarked. One of the 15 Operative Programmes,[52] the Electronic Public Administration OP also builds on the background of the eGovernment 2005 Strategy.[53]

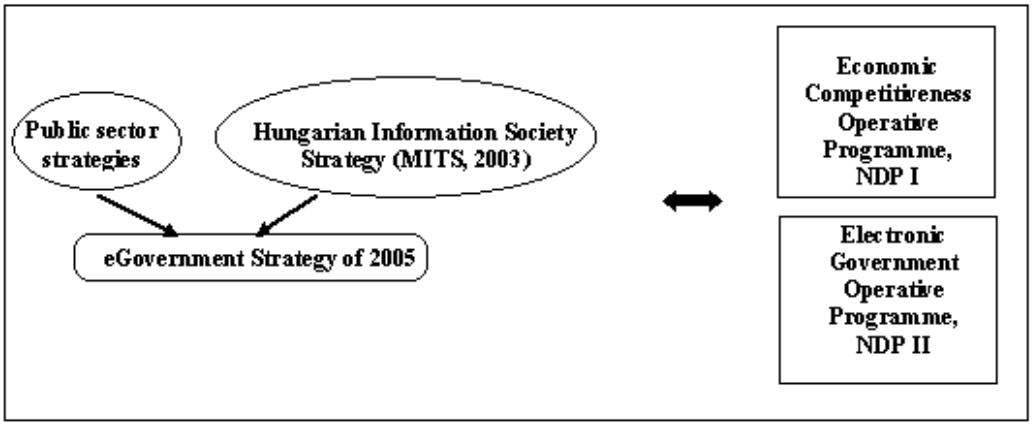
[50] *E-Kormányzat 2005 – Az e-kormányzat stratégia programmeozása* (eGovernment 2005 – Programmeming of the eGovernment strategy), 26 January 2004. EKK, Budapest

[51] Elektronikus Kormányzat Központ (EKK): eGovernment 2005 strategy and programme. http://misc.meh.hu/binary/6392_letoltheto_strategia_rovat_ekormaynzat_strategia.pdf

[52] Out of the 15, 7 are central sectoral programmes, such as the eGovernment one as well, while the other 7 are regional OPs and the last one is the Implementation OP. www.nfh.gov.hu

[53] National Development Agency: Electronic Public Administration Operative Programme, consultation version October 2006. www.nfh.gov.hu

Chart 16. The relation of the eGovernment Strategy to other key policies and strategies



a). Hungarian Information Society Strategy (MITS)

The MITS is the basic strategy document for the development of Information Society in Hungary. It gives special attention to eGovernment, eLocal Government and eHealth, while it strongly focuses on the development of general Information Society trends, Internet access, Internet usage, digital literacy and others that could create a stronger demand for eServices.[54] It identifies two main areas for modernisation: (1) business processes in government; and (2) service delivery to citizens and businesses.

The strategy "*intends to achieve the development of a knowledge-based economy and a modern information society in Hungary, at both state and local levels, within ten years"*. Creating a modern e-public administration is one of the high priorities of the strategy because in addition to other advantages "..... the *efficient and useful e-public services can demonstrate the benefits of the Information Society to the whole country*".[55]

The role of the government in implementing the national IS strategy may take several forms: in regulation, cooperation, coordination, setting best practices, financing, and taking the measures of subsidiarity. The MITS relies to a great extent on funding from the Structural Funds.

b). National Broadband Strategy

The objective of the National Broadband Strategy[56] is:

- that broadband internet penetration – the number of broadband subscription per 100 citizens – should reach the EU average by the end of 2008 and the EU15 average by the end of 2013;
- the use of services of eAdministration should reach the EU average by the end of 2008 and the EU15 average by the end of 2013;
- the proportion of eCommerce should reach the EU average by the end of 2008 and the EU15 average by the end of 2013;
- 90% of the Hungarian territory should be covered with broadband services by the end of 2008, and total coverage will be reached by the end of 2010;
- the proportion of "digitally illiterate" population should be less than 50% by the end of 2008 and less than 33% by the end of 2013.

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54 Ministry of Informatics and Communications (IHM) (2003c), *The Hungarian Information Society Strategy* (MITS), http://www.itktb.hu/Resource.aspx?ResourceID=docstorefile&f=761&t=stored.

55 Extract from the International Council for Information Technology in Government Administration (ICA) country report on Hungary following the 39th ICA conference held 12-15 September 2005 in Salzburg, Austria.

56 Ministry of Informatics and Communications (IHM) (2005), National Broadband Strategy, http://www.informatika.gkm.gov.hu/data/83125/net_eng.pdf.

c). The eGovernment 2005 Strategy and Programme

The Government 2005 Strategy and Programme (eKormányzat 2005 Stratégia és Programmeterv) sets the basis for the modernisation and electronisation of services and processes of the central public administration. The strategy divides its responsibilities into the following areas:

- **Basic infrastructure developments** (the government backbone network, government directory and mail systems, e-authentication system),
- **Development of e-regulations** (guidelines, standards, overview of data protection regulation),
- **E-Efficiency** (integrative systems and applications within the government, public e-procurement, open source development),
- **E-Services** (electronic public utilities, infrastructure for a Customer Management Centre, electronic payment system, eSignature for eServices),
- **E-Culture** (helping the employees in the administration to understand and to provide satisfactory eServices, and encouraging cooperation among the various institutions in the administration),
- **EU integration** (connecting the government network backbone to TESTA, participation in EU eGovernment programmes, adopting EU eGovernment regulations and guidelines).

II.2.2. The eHealth strategy

As the next chart shows the eHealth strategy is based on various pillars:

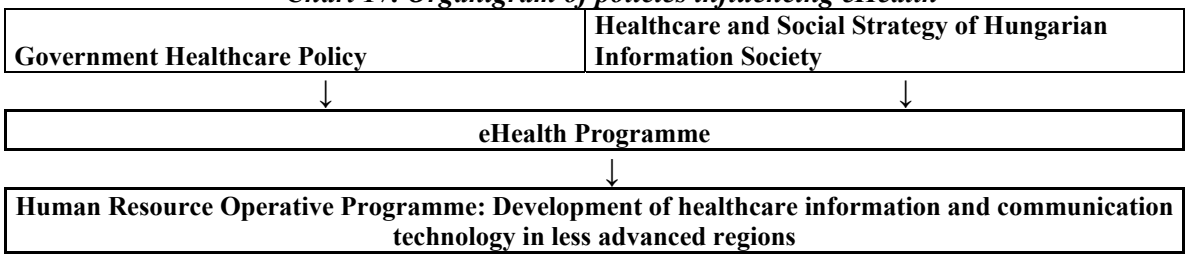
a) general **healthcare strategy** of the Hungarian Government which aims at following the basic recommendations and suggestion of the EU adjusted to local needs

b) the basic features of the healthcare segment of the **Hungarian Information Society Strategy (MITS)**

c) the main guidelines, aims of the **eHealth programme**

d) the implementations, projects within the **Human Resource Operative Programme** and associated use of the EU Structural Funds

Chart 17. Organigram of policies influencing eHealth



a) Healthcare policy of the Hungarian Government

The Hungarian Government approved the EU Minister's report on restructuring healthcare and the related implementation schedule. The key targets of the Government programme in recent years have been the improvement of the quality of life through health promotion, the enhancement of the equity of the healthcare system by reducing regional inequalities and by eliminating obstacles to access (i.e. in care, and in financial, social and mental terms), the improvement of the efficiency of the care provision system and individual service providers (by improving allocation efficiency and technical efficiency in parallel), the implementation of regional care based on the principle of progressive care and the restructuring of the care provision system to make it 'patient friendly', i.e. improve the conditions of care, grant patients more choice, and make patients more informed

The key tools to implement the above targets include (1) the implementation of the public health programme approved by Parliament and (2) the consolidation and development programme linked to the regional restructuring of the healthcare system.

This programme package creates regional planning for care, development policy, and the related institutional system. It tries to ensure balanced access to healthcare, uniform technical standards, including the replacement of obsolete key equipment (for ambulance and emergency services, diagnostics and oncological therapy) and the installation of such equipment where necessary. The programme integrates various funds, including EU funds, national development funds, ministerial development funds, municipal funds, and private investment for public purposes (*Public Private Partnership* programmes). The integration of the healthcare provision systems, and ensuring co-operation between organisations and funding arrangements are key tasks in restructuring the care provision system.

The healthcare policy has three major elements:

1. The Human Resources programme includes improved recognition for staff in the sector the simplification of professional training, and support for IT-based distance learning in ongoing continued training.
2. The financing reform is aimed at reinforcing the current public funding system and improving its efficiency. The Government expects this initiative to help reduce gratuities and distribute the public burden more equally.
3. Information and Communication Technology (ICT) development. The key targets of ICT development are to propagate the application of knowledge-based solutions in therapy and in strategic planning at the Government and regional levels, to improve the efficiency and quality of healthcare, and to promote uniform healthcare services. Other directions for initiative include improving the level of information available to patients and the healthy public, the application of ICT solutions in health improvement and patient information.

b) The healthcare aspects of the Hungarian Information Society Strategy (MITS)

In line with the major aims of the Hungarian Information Society Strategy (MITS) and the major tasks regarding *e*Health, the following targets have been set for the sector:

- Produce health and healthcare information and knowledge in the public interest, as well as provide eServices to the professional target audience. Content service development, trustable third party" (TTP) services and Internet and telephone consulting services regarding eHealth are among the main objects.
- Create an Information and Communication Technology friendly environment by building appropriate infrastructure and by developing standards for eApplication
- Improve knowledge management in the sector by developing a health status monitoring system and by implementing decision support systems.
- Development the concept for regional health and social care information centres
- Development of ePrescription, eConsilium, eFinancing standards

A total of 22 eHealth projects were defined for the 2004-2006 Activity Plan of the eHealth Programme of the MITS. Some of these were run from national funding; others were part of the National Development Plan 2004-2006.

c) The eHealth programme of the Ministry

The eHealth programme started in 2003 focused on the following areas:

- The establishment of the sector based information website which collects all relevant information, data and links related to eHealth
- The establishment and development of Internet based information source entitled Dr. Info.
- Development of the healthcare and social indicator system, establishment of an appropriate and well functioning monitoring system
- Support of healthcare research and development activities

d) The Human Resource Operational Programme of the National Development Strategy (2004-2006)

Within the Human Resource Operational Programme of the National Development Strategy, the Programme Nr. 4.4 dealt with the development of ICT in the healthcare sector by focusing on less developed regions[57] with long-term goals such as reducing the number of working days lost due to the illness of employees and establishment of a nationwide data and information system.

The main targets of the programme were:

- Development of inter-institutional sample information networks with the following purposes: more efficient cooperation between the service providers of the given region, costs savings (shorter hospitalisation, lack of parallel treatments), improving patients' comfort and satisfaction, as well as the position of regional information for national decision makers.
- Assistance for the development of info-communication networks and systems within the healthcare providing units with the aim of improving their costs efficiency.

In order to reach the targets, the following tasks were determined:

- Setting up a regional information system providing uniform standardised eHealth service in the areas of ePrescription, telemedicine, eConsultation and region specific eHealth services;
- Modernising the intra-institutional information systems, including Internal LAN networks, integrated healthcare and economic functions and management information systems.
- Organising ICT courses for the operators of the systems.

The programme had two main components:

- The development of the info-communication solutions for the inter-institutional cooperation (including standardise systems, information sources and solutions).
- Improvement of the ICT supply within the participating institutions.

The total budget of the project is 4.1 billion HUF (16 million Euro) and 45% of the funds are spent on the development of inter-institutional information networks, while the remainder is spent on upgrading the ICT of the institutions participating in the programme.

II.2.3. The impact of European and international policies and activities on the developments of eGovernment and eHealth policies

EU directives have influenced Hungarian eGovernment developments in the last 15 years. Due to Hungary's pre-accession efforts to the European Union (EU), and more recently to its status as a new EU member state, Hungary's legislative measures are on a path for alignment with the EU legal framework. EU-directives on eProcurement (2004/18/EC, Article 33), on eCommerce (2000/31/EC), on Re-Use of public data (2003/98/EC), on E-Signature (1999/93/EC), on eInvoicing (2001/115/EC amending 77/388/EEC) and on Data Protection (95/46/EC) had a major impact on Hungarian eGovernment developments. At the same time the eEurope and eHealth programmes have been strongly influenced by the elaboration of the Hungarian eHealth strategy.

II.3. The legal framework for eGovernment and eHealth applications

II.3.1. The current eGovernment legislation

The root of eGovernment development in Hungary dates back to the early 1990s. Legislative incentives covered a range of laws and regulations linked to Hungary's adaptation process to EU legislation and the incorporation into national legislation of a range of EU directives that had an

[57] Northern Hungary, Northern Great Plains and Southern Transdanubia

impact on eGovernment development. Although there is not a specific overall eGovernment law in Hungary, legislation process has accelerated since 2004. Hungary adopted all of the important EU directives and incorporated them into the Hungarian law. According to these efforts Hungary is generally at the same legal development level as other EU member states.

There are various Government decrees the objective of which is to regulate eGovernment issues (passed in 2004 and 2005):

- Government decree 184/2004 (VI. 3.) on the electronic public administration and on related services;
- Government decree 44/2005 (III. 11.) on the coordination of government informatics and related order of procedures

The *Act CXL of 2004* is a key element of the legislative framework for eGovernment. The objective of this law on the electronisation of public administration procedures (Közigazgatási elektronizációs törvény, KET) is to clear away the legal obstacles that hinder the development of electronic public services, and based on this law, the Central Electronic Service System (Központi Elektronikus Szolgáltató Rendszer) was founded with the eServices provided through this.

In November 2005, the *Act on the General Rules of Public Administration Procedures and Services*[58] came into force. It obliges the Hungarian public administration to make services available online, and each government department to make specific sets of information – including downloadable forms – available both on their own Web sites and through the governmental portal. The legislation also states that "*… governmental bodies will no longer have the right to ask citizens to provide them with certificates, documents or any other data that are already available in a government database*."

There are several legal elements, which together represent the eGovernment legislative framework.

1. Freedom of Information legislation

- *Act on Protection of Personal Data and Disclosure of Data of Public Interest (1992*) is a combined Data Protection and Freedom of Information Act. The Act guarantees that all persons should have access to information in the public interest which is defined as any information processed by government authorities except for personal information The Act sets rules and safeguards regarding the processing of personal data by public and private bodies. Its application is overseen by the **Parliamentary Commissioner for Data Protection and Freedom of Information**.
- *Act on the Freedom of Information by Electronic Means* (2005); its goal is the establishment of the legal environment required to create a transparent digital state. The law defines a list of specific data in the public interest that must be published on the Internet and mandates the creation of a discussion forum for citizens.
- *Act No. LXIII of 1992 on the Protection of Personal Data and Disclosure of Data in the Public Interest* is a combined Data Protection and Freedom of Information Act. The Act guarantees that all persons should have access to information in the public interest, which is defined as any information processed by government authorities except for personal information. The Parliamentary Commissioner for Data Protection and Freedom of Information oversees the application of the 1992 Act. In July 2005 the Hungarian Parliament adopted the Act on the freedom of information by electronic means, which establishes the legal environment required to create a transparent digital state.

2. Data Protection/Privacy legislation

- Act on Protection of Personal Data and Disclosure of Data in the Public Interest (1992)

[58] Parliament (2004), *CXL/2004 A közigazgatási hatósági eljárás és szolgáltatás általános szabályairól szóló törvény* (KET) (Act on the General Rules of Public Administration Procedures and Services).

- Act No. LXIII of 1992 on the Protection of Personal Data and Disclosure of Data in the Public Interest is a combined Data Protection and Freedom of Information Act. The Act sets rules and safeguards regarding the processing of personal data by public and private bodies. Its application is overseen by the Parliamentary Commissioner for Data Protection and Freedom of Information.

3. E-Commerce legislation

- Act on Electronic Commerce and Information Society Services (2001). The act was adopted on 18 December 2001, and it implements EU Directive 2000/31/ EC on certain legal aspects of Information Society services, in particular electronic commerce.

4. E-Communications legislation

- Act on Electronic Communications (2003). The Act implements the revised EU Regulatory Framework for Electronic Communications

5. E-signatures/E-identity legislation

- Act on Electronic Signature (2001). The Act on Electronic Signature was adopted on 29 May 2001 and entered into force on 1 September 2001. It creates a legal framework for the provision of certified electronic communication and data transmission in business, public administration and other areas of life affected by the information society.

6. E-procurement legislation

- Government Decree on Electronic Public Procurement (2004). Regulations governing the use of electronic means in public procurement are laid down in Government decree 167/2004 (V. 25.) "on the rules governing procedural acts performable electronically in public procurement procedures and on the Electronic Public Procurement System". This decree complements the Act on Public Procurement passed on 28 December 2003, which only provides for the electronic transmission of tender notices. The Hungarian Government expects that full implementation of the new EU-public procurement directives, including their e-procurement provisions, took place in 2005.

7. Re-use of public sector information

- Act on the freedom of information by electronic means (2005). Article 7 of the Act on the freedom of information by electronic means (which defines the Central Electronic List of Public Information and the Single Public Information Retrieval System) and its Annex (General Publication Scheme) serves the purpose of complying with Directive 2003/98/EC of 17 November 2003 on the re-use of public sector information (PSI).

II.3.2. Legal environment of eHealth

One of the important issues in regard to the legal environment is related to the protection of personal data. There is a complex legal environment regulating the handling of health data, an environment in which direct and indirect legislation may apply at various levels in combination.

The level of direct acts includes the *Act LXIII of 1992* on the protection of personal data and the publicity of data of public interest, and the *Act XLVII of 1997* on the handling and protection of health data and related personal data.

There are various ways through which mandatory data reporting is monitored and regulated. This includes government programmes (National Statistical Data Collection Programme (NSDCP)), legal elements (the Health Act, the Statistics Act) the applicable funding regulations, and the annual NHIFA budget.

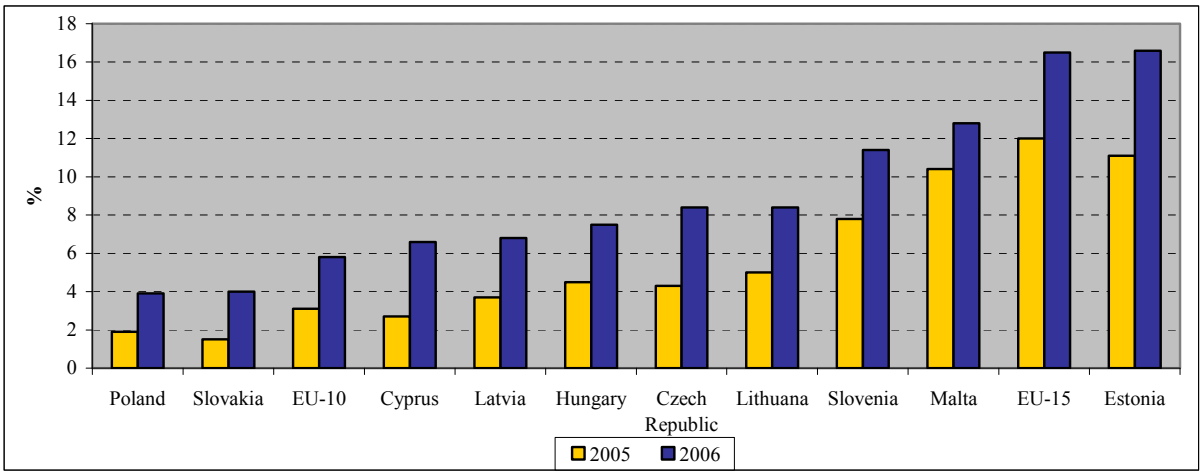
II.4. The ICT infrastructure

A prerequisite for eGovernment is the presence of well developed and diversified physical infrastructure at home, in the workplace and in the public sector. This section presents the main ICT infrastructure developments in relation to eGovernment in Hungary. Looking at these initiatives, it can be observed that most of them are part of three major strategies: the eGovernment 2005 Strategy and Programme,[59] the Hungarian Information Society Strategy (MITS[60]) and the National Broadband Strategy.[61]

II.4.1. Broadband infrastructure

In 2006 Hungary ranked the 6th among the new member states, above the EU10 average but far behind the EU15 average in regard to broadband penetration.

Chart 18. Broadband penetration rate



Source: Eurostat (2006)

According to the OECD broadband statistics[62] in towns with more than 10,000 inhabitants broadband coverage was 92.4% in 2005, while in the small villages (in which 24% of the population live) broadband coverage was only 40%[63] and the net increase in broadband penetration growth was smaller than the OECD net increase.

The public sector basic ICT infrastructure includes the **Electronic Government Backbone** (Elektronikus Kormányzati Gerincháló - EKG), the **Public Network** (Közháló) and the **National IT Infrastructure Development Programme** (Nemzeti Információs Infrastruktúra Fejlesztési Programme - NIIF). These provide the general government institutions (including central and local governments, public institutions and private non-profit organisations working for the public sector) and all Hungarian academic, research and public cultural institutions (e.g. museums, public libraries, archives etc.) with broadband and secure Internet connections. Another important strategy is the National Broadband Strategy's focus on the **improvement of the broadband access** in the whole country and the emphasis on the developments in the field of eGovernment, eBusiness and eCulture.

59 eKormányzat 2005 Stratégia és Programmeterv.
60 Magyar Információs Társadalom Stratégia.
61 Nemzeti Szélessávú Stratégia - NSZS 2005.
62 OECD Broadband Statistics, December 2005 (updated in April 2006)
63 Ministry of Informatics and Telecommunications (2006), Az információs társadalom 2002-2006. évi magyarországi fejlődéséről a Magyar Információs Társadalom Stratégia tükrében (On the development of the information society in Hungary in 2002-2006 in the mirror of the Hungarian Information Society Strategy), June 2006, p.26.

II.4.2. The price of Internet access

According to an Internet survey conducted in 2005 the proportion of people stating financial reasons for preventing them from using the Internet has increased during recent years, while the proportion of those stating a lack of interest has decreased.[64]

Computers are still too expensive to be household items for low and middle-income families in Hungary. Initiatives of the government, such as providing PCs through state support for individuals and schools (in the second half of 1990s all secondary and some primary schools received computers from the Sulinet programme[65]) contributed to higher computer penetration rate in households and in schools. The prices of Internet and IT application have generally decreased, telecommunication has become liberalised and the number of service providers has recently increased, which may improve the situation in the following years.

II.4.3. Electronic Government Backbone (EKG)

The main backbone of eGovernment services, the Electronic Government Backbone (Elektronikus Kormányzati Gerinchálózat, EKG) aims to provide a secure broadband infrastructure exclusively for the public sector. It connects the 18 county-capitals and the capital of Hungary, Budapest. The county connection points (POP) are placed in the offices of the Hungarian State Treasury, which ensures a stable and secure environment. The further development of this backbone could add to the elimination of institutional and regional differences among the access of the various players in the sector.

The preparation of the EGK started in 2001 and by May, 2006 there were more than 740 institutional end points with approximately 58,000 computers connected. These institutions belong to the central administration or they are regional units of institutions with national competence.

The development of the EGK is part of the eGovernment Strategy, and is created for the following purposes:

- to provide infrastructure for front-office tasks: to provide eServices for citizens and businesses in a reliable and secure way
- to provide infrastructure for the back-office tasks of the various governmental institutes
- to provide secure connection to Community databases

Internet access provided by the EKG is a high speed and secure service. Internet traffic reached 250-270 Mbps by the middle of 2006. It has a modern firewall programme and the security system has operated perfectly since 2002. The operation of the EKG is supported by a 24-hour telephone helpdesk. The operation of EKG is supervised and monitored by the EKK, which is part of the Prime Minister's Office

Since 2004 the EKG has been connected to TESTA (Trans-European Services for Telematics between Administrations). The EKG is accredited with the transfer of documents qualified "EU Restricted". In addition the HSNet (Hungarian Security Network) is part of the EKG, which is a high-level security, coded network supporting special governmental coordination (among 9 national institutions) for handling coded, security EU documents.

In May 2006, about 58,000 users at a total of 740 institutional units performed their work using the EKG network.[66]

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[64] Source: *Lakossági internethasználat.*

[65] Sulinet portal (2006), The Hungarian educational system portal, accessed 31 July 2006, http://www.sulinet.hu/.

[66] Electronic Government Centre of the Prime Minister's Office (EKK) (2006c), *Összefoglaló a kormányzati informatika és az elektronikus kormányzás terén végzett tevékenységekről és eredményekről (2002. július – 2006. május)* (Summary on the activities and results in the field of governmental informatics and e-governance July 2002-May 2006).

II.4.4. Internet access for public institutions

To provide broadband access for the public sector, the **Public Network Programme** or the *Közháló Programme*[67] was launched in 2003. Contrary to the EKG, which is used solely for the institutions of the central administration or with national competence, Közháló is used for public services in general. The main aims of the programme are to provide towns and villages with access by Public Network by the end of 2006 and to connect all public institutes and private non-profit organisations working for public goals by the end of 2006.

The Public Network Programme is based on an integrated plan to merge existing networks with different functions.[68] It will cover towns and villages, public institutions and private non-profit organisations working for the public sector.[69] By supporting regional and local development, the government hopes to achieve better social cohesion and inclusion, particularly with regard to Information Society initiatives in Hungary.[70]

Publicnet is used for the operation of the eMagyarország (eHungary) points, which are public access points at libraries, community centres, telehouses,[71] clubs and foundations.

In addition to the Public Network Programme the National IT Infrastructure Development Programme (NIIF) must be mentioned, which covers all Hungarian academic, research and public cultural institutions (museums, public libraries, etc.) by providing these institutions with an integrated network infrastructure and using this backbone to provide a wide range of communication, information, and co-operation services.[72]

The public sector's electronic infrastructure provision seems to be in place through a number of projects. However, the number of different, apparently uncoordinated, infrastructure programmes seems to have resulted from a lack of coherent planning.

II.4.5. The eHealth infrastructure

For eHealth services, related to the technical background, there is little information available. The first major project in this field was implemented from 1998, the Hospital Management Information Support System project that was funded by the World Bank. In the field of eHealth, no central, harmonised efforts have been taken for the development of a special technical background; rather, the institutions purchase the equipment that they can, and commercial Internet access is used for communication.

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67 Ministry of Economy and Transport Web site (2006), *Közháló Programme* (the Public Network Programme), http://www.informatika.gkm.gov.hu/programmeok/indul_a_kozhalo , accessed in July 2006.

68 The Sister City Programme of the City of New York (2004), Information Society in Hungary, Sister City Programme Technology Summit White Papers, June 2004, http://www.nyc.gov/html/unccp/scp/downloads/pdf/budapestwhitepaper.pdf.

69 Ministry of Informatics and Communications (IHM) (2005), National Broadband Strategy, http://www.informatika.gkm.gov.hu/data/83125/net_eng.pdf, accessed in July 2006.

70 http://www.ihm.gov.hu/kozlemenyej/kozlemenyek_20040903_1.print.

71 Telehouses are public internet access points supplied with current, highly developed information and communication technologies established mainly in smaller, more remote parts of the country.

72 www.niif.hu.

II. 5. Major eGovernment and eHealth services

II.5.1. Measurement of eGovernment services

The information in this chapter is based on the common list of 20 basic public services (12 for citizens and 8 for businesses) adopted by the Council of the EU in March 2001, online availability and sophistication in the eEurope benchmarking exercises.

Table 14. The 20 public services measured and reported by IDABC

12 services for the citizens	8 services for businesses
1. Income Tax Declaration 2. Job Searches by labour Offices 3. Social Security Contributions 4. Personal Documents 5. Car Registration 6. Application for Building Permission 7. Declaration to the Police 8. Public Libraries 9. Certificates (birth, marriage) Request and Delivery 10.Enrolment in Higher Education 11.Announcement of moving (change of address) 12.Health-related services (e.g. appointments for hospitals)	1. Social security contributions for employees 2. Corporation Tax: declaration, notification 3. VAT: declaration, notification 4. Registration of a new company 5. Submission of data to statistical offices 6. Customs declaration 7. Environment-related permits 8. Public procurement

For each service, the stage of sophistication that has been reached is indicated, with reference to the maximum stage possible for the service according to the division among the following stages:

- Stage 1 - Information: online information about public services
- Stage 2 - Interaction: downloading of forms
- Stage 3 - Two-way interaction: processing of forms, including authentication
- Stage 4 - Transaction: full case handling, decision and delivery (payment)

The maturity of eGovernment services are signed by indicators such as *Online sophistication*, which is the level of online availability of the basic public service, and *Full online availability*, which shows the total number of basic public services that are 100% available online.[73]

II.5.2. eGovernment services in general

Currently, Hungary's eGovernment services provided by various agencies are in general weakly interconnected and interoperable. However, building the **Central Electronic Service System** (Központi Elektronikus Szolgáltató Rendszer) as an overarching framework for interconnectivity across central government infrastructure is a major step towards ensuring whole-of-government interconnectivity. The building blocks of this Central Electronic Service System include the following:

- **Electronic Government Backbone (Elektronikus Kormányzati Gerinchálózat – EKG):** it physically connects the main providers of eGovernment services in the public sector
- **The Government Portal (www.magyarorszag.hu):** The government portal serves two purposes: on the one hand it is a common entrance to eServices provided by the public sector institutions, and on the other hand it is an information interface for users.

[73] Source: OECD. Based on the study on *Online Availability of Public Services: How is Europe Progressing?*, Report of the Fifth Measurement, June 2006, prepared by Capgemini for the European Commission.

- **The Client Gate (Ügyfélkapu):** At the Client Gate users can identify themselves to obtain full access to eGovernment services
- **Government Customer Information Centre (Kormányzati Ügyféltájékoztató Központ -KÜK):** The Centre assists users in finding information in the public sector or contacting public authorities

The Hungarian eGovernment strategy focuses on integrating service provision to citizens and business. This is to be realised through a one-stop-shop service delivery solution interconnecting government bodies.

The centralised and focused development of online public services dates back to 2003, when the 1126/2003 Government Decree on eServices Universal Programme determined two priority areas for development: (1) the online provision of tax declarations (comprising almost one quarter of all government transactions) and (2) to allow citizens the online initiation of documentation office.

From 2004 these policy priorities served the basis for the fast deployment and development of 20 basic public services. The government determined the speed and main areas of online public service developments until the end of 2005 and formulated an ambitious programme for the development of front offices.

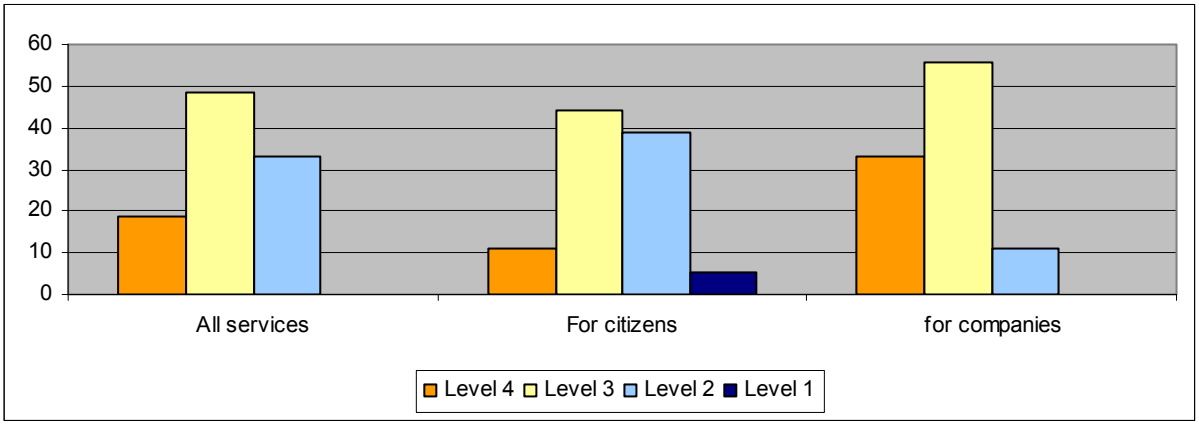
As for the measurement and evaluation of electronic public services, the EU Common List of Basic Public Services contains a list of requirements to be introduced in a 4 level grading in the EU member states. There are 20 (12 for citizens + 8 for companies) public services in the list. For Hungary the list is manifested in 27 concrete procedures.[74]

Out of these 27 services five could be reached at the highest level, thirteen at level three, eight at level two and one service was available only at level one. There were some differences between the level of sophistication of online public services available for citizens and business. In services to business almost 90% could be reached either at level three or four, while for citizens it is much lower.

Similarly to the experiences of other countries, the fastest developments were observed in the case of online tax declarations both in the case of business sector and citizens (see Box 4 on eTaxation later). In Hungary there are 350 million transactions annually between citizens and users on the one hand and government on the other, and out of these 50% are related to cases with the State Tax, Finance and Control Agency (APEH) and an additional 20% to other taxation related matters. The number of online transactions in taxation related matters increases annually by 10-15% and by the end of 2005 the full procedure had been put online.

[74] These 27 services are equal to the 12+8 services, and Hungary participates in international comparison with the 20 services. In this text their description is carried out according to the service providers, and appropriate numbering indicates, where is one service in 12+8 category divided into more services within the Hungarian 27 services.

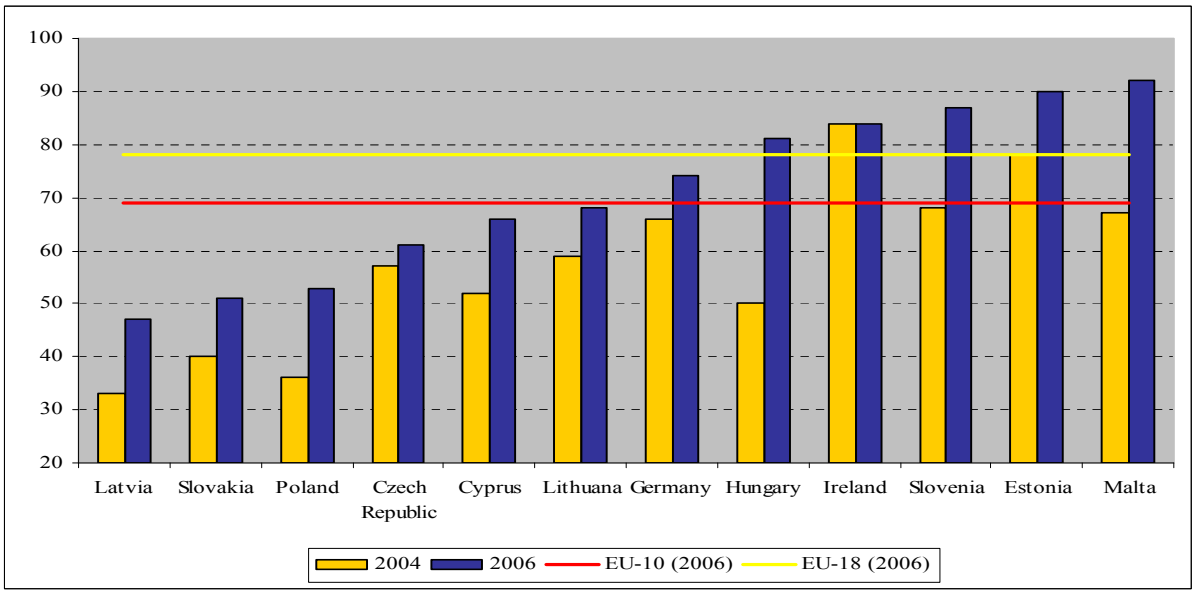
Chart 19. The proportion of level 1, 2, 3, and 4 services in total of all, for companies and for citizens services (%)



Source: *Online Availability of Public Services: How is Europe Progressing?* Report of the Fifth Measurement, June 2006, prepared by Cap Gemini for the European Commission.

In order to comply with EU priorities, Hungary has recently focused on extensively developing the 20 eGovernment services benchmarked by the EU. As a result of this and according to the survey of Online Availability of Public Services: How is Europe Progressing?[75] Hungary has significantly improved both online sophistication and full availability of eGovernment services in the last two years. (See Charts 20 and 21.)

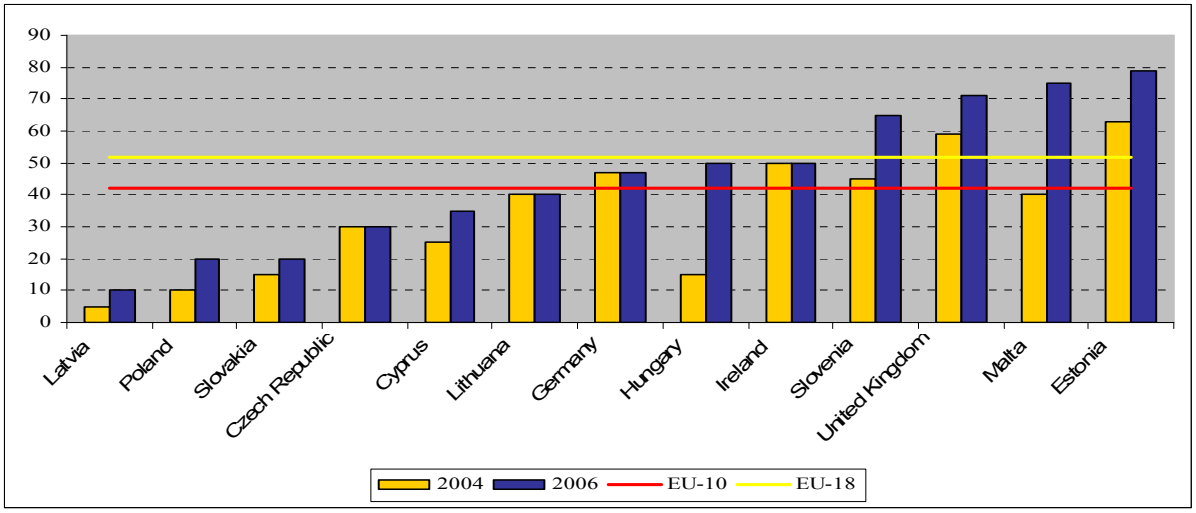
Chart 20. Country results - online sophistication



Source: *Online Availability of Public Services: How is Europe Progressing?,* Report of the Fifth Measurement, June 2006, prepared by Cap Gemini for the European Commission.

[75] Report of the Fifth Measurement, June 2006, prepared by Capgemini for the European Commission.

Chart 21. Country results - full availability of online services[76]



Source: *Online Availability of Public Services: How is Europe Progressing?* Report of the Fifth Measurement, June 2006, prepared by Cap Gemini for the European Commission.

According to these benchmarks, Hungary has managed to increase above the EU10 and EU28[77] average for both online sophistication and percentage services available online. The improved performance in the EU benchmarks is clearly shown in the chart, showing a significant increase in online sophistication from 2004 to 2006. Hungary is now above the EU28 average (75%) and EU10 average (69%), with a total rating of 81% in 2006. In terms of full online availability of eServices, Chart 20 shows a significant increase from 2004 to 2006.

Box 3. Major eGovernment services

1. Government portal and customers' gateway:

The gateway implies secure identification of the citizens (customers) and links them to the eService providers via the central system of the document offices, conducted by the Ministry of Interior.

Services include:

- Secure and single identification of the customer, then providing a link to the services of the institution providing them.
- Customers can reach the system and the given eServices of the institution through an internet browser, supplemented with the applications that can be downloaded.
- Receiving electronic documents authenticated by standard electronic signatures on market.

The system is getting prepared to receive future alternative tools of identification (cell phone chips e.g.), with standardized interfaces to be connected through.

There is the Government's Customer Information Center, equipped with e-mail and call-centre in order to produce immediate replies in response to enquiries made by citizens and companies in four languages for the time being (Hungarian, English, German, and French) via a free telephone number 189 and 189@ugyfelvonal.hu e-mail address. The portal and the customers' gateway can be reached through: http://www.magyarorszag.hu

[76] A publicly accessible Web site offers the opportunity to completely use the public service online, including decision and delivery. No other formal procedure is necessary for the applicant via "paperwork". European Commission Directorate General for Information Society and Media: "Online Availability of Public Services: How is Europe Progressing?", page 7.

[77] The EU28 countries consist of the 25 EU member states, Iceland, Norway and Switzerland.

2. Magyarorszag.hu

Hungary's eGovernment portal, Magyarorszag.hu (Hungary.hu) was launched in September 2003 to replace the former eKormanyzat.hu (eGovernment.hu). At the same time it is an institutional portal and a services platform. It is meant to ultimately provide access to 56 interactive services including address notification, extension of driving licence validity and birth certificate requests. On 1 April 2005 the portal went fully transactional with the launch of a gateway, called 'Client Gate' (Ügyfélkapu).

This gateway allows users to securely identify themselves online and gain access to transactional eGovernment services through the portal. Any user who completes a temporary registration procedure online can access a number of services made available through the Client Gate, but an authenticated registration is needed to access fully transactional services such as those provided by the Hungarian Tax and Financial Control Administration (APEH).

3. Virtual document office (XR):

E-document administration provides the opportunity to ask for appointments in issues such as a change of address registration and address card administration, issuing entrepreneur licenses, registry of marriage, birth and death, driving license administration, parking licence for the disabled, and car registry.

II.5.3. The eGovernment services for citizens

The services to citizens are divided into the eighteen ones assessed according to the institution, which is responsible for their provision, the level of sophistication of the service with a brief description of its major functions.

1. Income taxes (declaration, notification of assessment)

Responsibility	Central Government, Ministry of Finance, Tax and Financial Control Administration
Web-site	http://www.apeh.hu/
Sophistication level	4/4[78]

Description of the service: All forms are downloadable for the supply of data and declaration of taxes, which may be submitted both online and offline. The service has become increasingly popular among the users: according to the preliminary information in 2006 around half of personal income tax declarations were submitted online.

[78] For each service, the achieved sophistication stage (out of the maximum level 4) is indicated, with reference to the maximum stage possible for the service. The sophistication stage is specified only when clearly identifiable.
Stage 1: Information: online information about public services.
Stage 2: Interaction: downloading of forms.
Stage 3: Two-way interaction: processing of forms, including authentication.
Stage 4: Transaction: full case handling, decision and delivery (payment).
Source: OECD. Based on the study on *Online Availability of Public Services: How is Europe Progressing?*, Report of the Fifth Measurement, June 2006, prepared by Capgemini for the European Commission.

2. Searches by Labour Offices

2a. Job Search services by labour offices

Responsibility	Central Government, Ministry of Employment and Labour, National Employment Service
Web-site	http://www.afsz.hu/
Sophistication level	3/3

Description of the service: The website of the National Employment Service makes it possible to search amongst and apply to the positions on offer, as well as to ask for notification of the offers corresponding to the applicant's needs. In addition to this there are an increasing number of private service providers who supply information on employment opportunities and available jobs.

2b. Job announcement to the database on labour offices through the Internet

Responsibility	Central Government, Ministry of Employment and Labour, National Employment Service
Web-site	http://www.afsz.hu/
Sophistication level	3/3

Description of the service: The website of the National Employment Service makes it possible to announce job offers and opportunities on the web, provides guidance and information for the employees on employment, education, training and retraining related issues. In addition it includes a domestic description of foreign employment opportunities, gives news and details as well as links to applications, tender and grant calls.

3. Social security contributions

3. a. Unemployment Benefits

Responsibility	Central Government, Ministry of Employment and Labour, National Employment Service
Web-site	http://www.afsz.hu/
Sophistication level	2/4

Description of the service: The information and the forms needed for the application to the service are available, but so far there has been no higher level interaction established with the service providers.

3. Social security contributions

3. b. Declaration for the social security benefits on the children of employees

Responsibility	Central Government, Hungarian State Treasury
Web-site	http://www.allamkincstar.gov.hu/
Sophistication level	2/4

Description of the service: The information and the forms needed for the application to the service are available, but downloadable forms should be submitted offline. The information pool contains details on the support, the application procedure, and support for disabled and handicapped people. It also describes the legal rules and procedures for employees and contains information about the service places.

3. Social security contributions

3.c. Medical costs (reimbursement or direct settlement)

Responsibility	Central Government, National Health Insurance Fund
Web-site	http://www.oep.hu/
Sophistication level	2/4

Description of the service: Information is generally available about the services. Downloadable forms should be submitted offline, and there is no online handling of the service required. The site provides valuable information and links both for the insured and for employees.

3. Social security contributions

3.d. Student grants

Responsibility	Central Government, Universities and the Ministry of Education, Hungarian Scholarships' Committee
Web-site	http://www.om.hu/
Sophistication level	2/4

Description of the service: Information only. The universities generally transfer students' grants electronically, but no procedure can be initiated online.

4. Personal documents (passport and driving licence)

4.a. Passport

Responsibility	Central Government, Ministry of the Interior, Central Office
Web-site	http://www.magyarorszag.hu/
Sophistication level	2/3

Description of the service: Information is available on the request procedure. If citizens have already registered, they can make an appointment date online and can initiate the procedure at the agency (document office) online.

4. Personal documents (passport and driving licence)

4.b. Driving licences

Responsibility	Central Government, Ministry of the Interior, Central Office
Web-site	http://www.magyarorszag.hu/
Sophistication level	3/3

Description of the service: Information and downloadable forms are available online. Requests for international licenses may be initiated online. Case handling is offline and documents are delivered offline.

5. Car registration (new, used and imported cars)

Responsibility	Central Government, Ministry of the Interior, Central Office
Web-site	http://www.magyarorszag.hu/
Sophistication level	3/4

Description of the service: Information and downloadable forms and their submission are online but the process is still offline.

6. Application for building permission

Responsibility	Central Government, National Home and Construction Office
Web-site	http://www.magyarorszag.hu/
Sophistication level	2/4

Description of the service: Information about the procedure only. The local governments in charge and the related departments issuing the permits are not yet prepared to manage the requests online.

7. Declaration to the police (e.g. in case of theft)

Responsibility	Central Government, Ministry of the Interior, Hungarian Police
Web-site	http://www.bm.hu/police
Sophistication level	2/3

Description of the service: Information only. Declarations can however be sent via the central e-mail address police@bm.gov.hu. E-mails are filed and forwarded to the responsible officers. Reporters receive notifications. There are also downloadable forms online, as well as a forum for advice on crime prevention.

8. Public libraries (availability of catalogues and search tools)

Responsibility	Central Government, Ministry of Cultural Heritage and the National Széchenyi Library
Web-site	http://www.mek.iif.hu/ and http://www.ki.oszk.hu/
Sophistication level	3/3

Description of the service: Online information is available about most public libraries, but interactive services are not generalised. The website of the Hungarian Electronic Library (MEK) provides an opportunity for two-way interaction. The digitalisation of information has started only recently.

9. Certificate request deliveries

9a. Birth related certificates: request and delivery

Responsibility	Central Government, Ministry of the Interior, Central Office
Web-site	http://www.magyarorszag.hu/
Sophistication level	3/3

Description of the service: Requests for certificates, as well as making an appointment with the agency may be initiated online, after having registered into the system – with a personal visit. Case handling is offline.

9b. Marriage related certificates: request and delivery

Responsibility	Central Government, Ministry of the Interior, Central Office
Web-site	http://www.magyarorszag.hu/
Sophistication level	3/3

Description of the service: Requests for certificates, as well as making an appointment date with the agency (document office) may be initiated online, after having registered into the system – with a personal visit. Case handling is offline.

10. Enrolment in higher education/university

Responsibility	Central Government, Ministry of Education, National Office for the Enrolment in Higher Education
Web-site	http://www.felvi.hu/
Sophistication level	4/4

Description of the service: There are personalised interactive services and information available on the website (via postal letters, telephone, e-mail, Internet and SMS). Enrolment is still managed by higher education institutions. Documents for application should also be submitted online.

11. Announcement of moving (change of address)

Responsibility	Central Government, Ministry of the Interior, Central Office
Web-site	http://www.magyarorszag.hu/
Sophistication level	3/3

Description of the service: Requests for annexes and change, also making an appointment date with the agency (document office) can be initiated online. Process management is offline, and the procedure needs personal registration in advance.

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

Responsibility	Central Government, Ministry of Health
Web-site	http://www.eum.hu/
Sophistication level	2/4

Description of the service: Only information and some downloadable documents are available online on public health administrative procedures. There is little opportunity to make appointments or to ask for advice on services online yet. This applies not only for centralised institutions but also for home doctors and other smaller healthcare units (hospitals, doctors).

According to the benchmarks given above, declaration of income taxes, declarations to the police in cases of theft, and enrolment in higher education are the most sophisticated public services available online for citizens; each reached a 100% maturity. In addition, a number of eServices provided by the Virtual Document Office (*Virtuális Okmányiroda - XR*)[79] such as birth and marriage certificates and change-of-address announcements are fully available online for those who have registered via the Client Gate. In contrast to the overall progress made by other EU countries, Hungary is at the lower end of online sophistication in the areas of social benefits (particularly regarding student grants).[80]

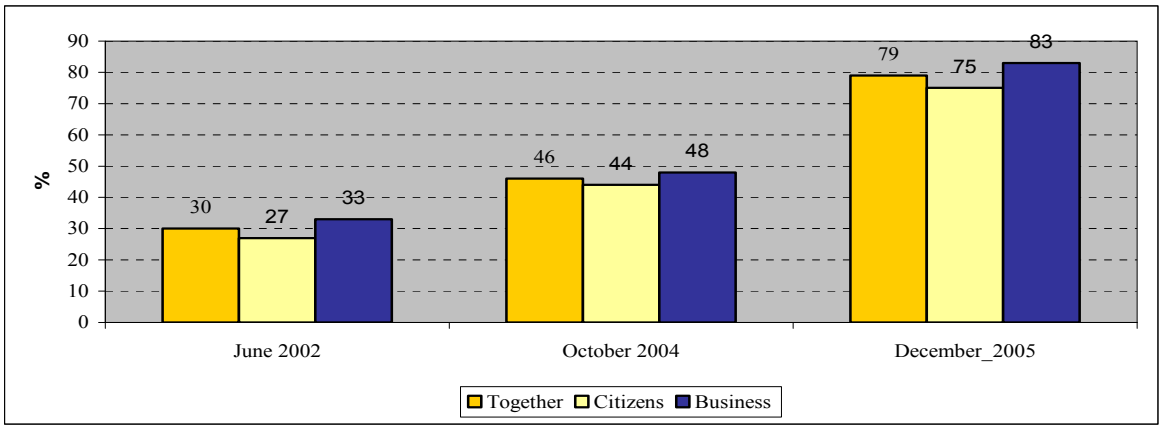
II.5.4. The eGovernment services for the business sector

Hungary has delivered a number of eServices to businesses as part of the implementation of the 20 eServices. Chart 22 shows the level of sophistication of eServices for citizens and businesses. Between 2004 and 2005, the level of sophistication of eServices for businesses improved more than in the case of eServices for citizens (35 points versus 31 points), confirming the general trend observed in many OECD countries that eServices for businesses often are more mature than those for citizens.

[79] Also called Internet Public Administration Service System or Virtual Records Office.

[80] Capgemini for the European Commission (2006), *Online Availability of Public Services: How is Europe Progressing?,* Report of the Fifth Measurement, June 2006.

Chart 22. Sophistication of eServices for citizens and businesses in Hungary (%)



Source: Kopint-Datorg, *Összefoglaló tanulmány az EU által meghatározot e-kormányzati szolgáltatások monitoringjáról* (Summary of the monitoring of eGovernment services benchmarked by the EU), December 2005, Budapest.

1. Services for employees and employers

1a. Services provided for employees and employers

Responsibility	Ministry of Employment and Labour
Web-site	http://www.fmm.gov.hu/
Sophistication level	3/4

Description of the service: There are downloadable forms that can be submitted online. The same procedure is planned similar to corporate taxes: online declaration, submission and payment.

1b. Social contribution for employees

Responsibility	Central Government: Retirement Insurance Directorate General of the Ministry of Finance
Web-site	http://www.onyf.hu/
Sophistication level	2/4

Description of the service: There are downloadable forms that have to be submitted offline. The same procedure is planned similar to corporate taxes: online declaration, submission and payment.

2. Corporate taxes: declaration, notification

Responsibility	Central Government, Ministry of Finance, Tax and Financial Control Administration
Web-site	http://www.apeh.hu/
Sophistication level	4/4

Description of the service: The process relies on PKI-based chip technology with increased security. The required tools (chip card, reader) are provided by the Tax Office. There is a special emphasis on the 10,000 largest corporate taxpayers; from 2007 onwards all registered enterprises will have to submit their declarations online.

3. VAT: declaration, notification

Responsibility	Central Government, Ministry of Finance, Tax and Financial Control Administration
Web-site	http://www.apeh.hu/
Sophistication level	4/4

Description of the service: Information and downloadable forms are available on the website. Submissions can only be conveyed for the largest tax-paying companies (over 10,000).

4. Registration of a new company

Responsibility	Central Government: Ministry of Justice and Law Enforcement, National Office of Judicature Council
Web-site	http://www.magyarorszag.hu/ugyfelkapu/
Sophistication level	4/4

Description of the service: Since September 2005 companies can submit registration requests and registration changes requests (changes in the seat, branch or field of activity of the company) electronically to the Business Court. In addition to filing registration and registration change requests, companies can also request an electronic copy of the documents from the business registries. At the moment the service is only available to large companies (limited and listed companies), which frequently need to file business registration documents, but it will be extended to all businesses in the future. Even for large companies the service is not compulsory and remains optional.

5. Submission of data to statistical offices

Responsibility	Central Government: Central Statistical Office
Web-site	http://www.ksh.hu/
Sophistication level	3/3

Description of the service: Data can be submitted electronically to the Statistical Office and there is a full electronic case handling.

6. Customs declarations

Responsibility	Central Government, Ministry of Finance, Hungarian Customs and Finance Guard
Web-site	http://www.vam.hu/
Sophistication level	3/4

Description of the service: There are basic interactive tools and information available online on the website. Certain forms with permission can be returned online but most remain in the offline return category.

7. Environment-related permits (incl. reporting)

Responsibility	Central Government, Ministry of Environment and Water Management
Web-site	http://www.kvvm.hu/
Sophistication level	3/4

Description of the service: There are downloadable forms on the Hungarian Government portal for the purpose of the declarations that can be submitted online.

8. Public procurement

Responsibility	Central Government, Council of Public Procurement of the Prime Minister's Office
Web-site	http://www.kozbeszerzes.hu/
Sophistication level	3/4

Description of the service: The website of the Council for Public Procurement provides access to public procurement information and to the tender notices published in the Hungarian Official Journal. Registered institutions may publish their calls online and can monitor the state of the tender. Notifications work via e-mailing.

Box 4. E-Taxation for businesses

The Hungarian Tax Authority (APEH) has been a pioneer of transactional e-services. *E-taxation* was introduced in October 2002 and the government originally intended to require the top 500 corporate taxpayers to submit their tax return declarations online. In 2004, the online obligation was enlarged to cover the largest 3,000 taxpayers. In 2005, the online obligation was again enlarged to cover the 10 000 largest taxpayers, who account for more than 70% of tax revenue.[81] Smaller businesses still have a choice between the online and off-line services. The Hungarian government is pursuing its objective to extend online services to all employers in Hungary by 31 January 2007.[82] Mandatory usage of electronic tax filing has helped promote business take-up in Hungary, and demonstrates how eGovernment benefits can be realised by "pushing" targeted populations with good Internet access to use electronic services.

The online filing system, eBEV, became fully electronic in 2005, allowing forms to be downloaded, filed and sent to APEH online and tax returns to be submitted electronically using digital signatures. Furthermore, since April 2005, citizens can also benefit from e-filing via the Client Gate[83] once they have registered for a password and a username in person.[84]

According to APEH, the enlarged eBEV circle represents less than 1% of Hungarian taxpayers but more than half of the net money circulation. In addition to 9,920 corporations, the circle now comprises 80 individual entrepreneurs, representing 2.5% of the total tax output of the country's 460,000 individual entrepreneurs. It is expected that the extension of the eBEV circle will reduce the number of tax-related forms to be filed by traditional paper-based methods by 350,000 in 2006 (companies fill out a number of forms each month in Hungary). The process automation also reduces the amount of corrections needed.

Source: OECD survey on eGovernment in Hungary, 2006

II.5.5. The Government-to-Government eServices

In May 2006, 740 network connections to public institutions were established with 58,000 users connected to the Electronic Government Backbone. This also resulted in a rapid increase in the level of e-mail exchange EGB.

The use of the Electronic Government Backbone has improved rapidly in the period 2003-2005. Furthermore the number of emails sent or received through the EGK increased fourfold between 2003 and 2005.

The Electronic Government Backbone provides a technical platform mainly for central government institutions with basic infrastructure and ICT tools enabling these institutions to be inter-connected.

The new government programme includes initiatives to provide centralised horizontal services within central government in areas such as human resources and accounting to increase public sector efficiency and transparency.

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81 Futó, I. (2006*), Elektronikus adózás, IX. Országos Neumann Kongresszu* (Electronic taxation, IX. Neumann Congress), Budapest.

82 This covers 1.2 million employers and 4.5 million employees.

83 Electronic Government Centre of the Prime Minister's Office (EKK) (2006a), *Az e-Kormányzat Stratégia jövőbeni koordinálási feladata* (Future Co-ordination tasks of eGovernment strategy), 31 March 2006.

84 Futó, I. (2006), *Elektronikus adózás, IX. Országos Neumann Kongresszu* (Electronic taxation, IX. Neumann Congress), Budapest.

II.5.6. The major eHealth services

Dr. Info

The main public information portal on Health was launched in 2004 by the Ministry of Health (http://drinfo.eum.hu/drinfo/). It provides information regarding the following issues:

- availability and contact information for various health institutions – hospitals, clinics, local doctor's offices,
- contact information for civil organisations dealing with health prevention or health problems,
- telephone numbers of emergency and aid services,
- data and information on medicine, drugs – rules of substitution and parallel medication,
- data and information on various medical tools, aids,
- data on diseases.

There are no Stage 2 services available from the portal, but information provision is two-way: questions may be asked via email and there is a telephone help desk that is available from 6 am to 10 pm.

NHIFA - Gyogyinfok

The Centre for Healthcare Information — GYOGYINFOK of the Ministry of Health was established as a stand-alone budgetary organisation in 1974. In 2004 it has been transferred to the National Health Insurance Fund Administration. Its main responsibilities are the methodology and economic research related to health and prevention, the developments of codification, data acquisition and processing.

The National Health Insurance Fund is responsible for reporting to the Government regarding social insurance. The National Health Insurance Fund Administration is acting as the managing body. The reporting is obligatory for the health sector and those working in it (doctors, hospitals, pharmacists, etc) towards the NHIFA on the activities carried out. The healthcare providers, retail pharmacies and medical device distributors maintain the registers prescribed for funding and accounting purposes regarding the patients treated, the services delivered, and medication provided. They report data to the NHIFA regarding the healthcare services that serve as the basis for their financing.

The NHIFA as well as the service providers collect and register the following data:

- Administrative certification of the Social Insurance Numbers, issuance of Social Insurance Cards, and the related registration tasks.
- The NHIFA signs and registers the funding contracts regarding the healthcare services

The website Gyogyinfok provides regulation, codification, quality insurance information, protocols and drug information, and various forms can be downloaded for administration and reporting purposes. These forms are related to:

- Outpatient and inpatient care
- Dental care
- Family doctor's care
- Nursery/infant care service

The NHIFA through the portal, Gyogyinfok not only collects information form the individual medical service providers but publishes report, summaries, data on the results and trends.

The Hungarian Health Portal (Egészségügyi Ágazati Portál)[85]

Started in late 2003, the development of the Hungarian Health Portal is a major phase in e-Health development under the Hungarian e-Health Programme at the Hungarian Ministry of Health. The objective of the project is to develop a central gateway to health and healthcare related information supporting the information needs professionals working in the health service. In this respect the portal can be classified as a mixed implementation of B2B and B2E type models. Services of the portal:

- Supporting interaction of health professionals and businesses
- Access to medical databases and certified registries
- Access to evidence-based medicine (CE-Online), drug information and medical e-books in Hungarian
- Hosting medical communities and providing means of electronic transactional services as e-prescription (in the longer term)

Disability portal[86]

The Disability Internet Portal collects specialised information and useful services for all the people involved in the disability issue to serve as an information database, and source of daily updated news and media for forming a community The portal is available for people with various disabilities, deaf and hard of hearing people, the blind and visually impaired people, the mentally handicapped and autistic people as well The Disability Portal provides:

- information service for disabled people and for relatives of the disabled,
- database service,
- presentation of life stories,
- developing relationships among disabled people.

ESKI

The service of ESKI, National Institute for Strategic Health Research (former MEDINFO) - as a mediator of healthcare and health promotion information is a comprehensive health information service provided to a wide spectrum of users. It consists of several pillars:

- Internet-based Hungarian Health Data warehouse,
- Database of data provided by the NHIFA but further processed by the ESKI,
- Online library catalogue,
- Hungarian Medical Bibliography - provides complete coverage of the Hungarian medical literature, including reference and bibliographical information of selected journal articles in the Hungarian medial literature in the English language,
- Information on professional publications, professional forums, conferences:
    - European Union news,
    - Health informatics newsletter,
    - Health promotion information,
    - Community health information database,

Private initiatives in the field of eHealth

Most private initiatives focus on information provision related to health and health prevention activities. Some of these websites are:

- www.informed.hu; set up by Medicorp Ltd., a private company. It closely cooperates with professionals, associations and universities. INFORMED website provides information on

[85] http://agazat.eum.hu
[86] www.fogyatekos.hu

health prevention, diseases, treatments, pharmacies. A facility exists to ask specific questions via email, but only general diagnosis is given. This site, as most others, strongly recommends any person enquiring about health problems to consult personally with an expert, as the advice provided through email cannot be compared with an online diagnosis.

- www.pszichologia.hu set up by the Hungarian Psychologist Association, and includes information and further links on business and family life, mental health, pedagogy and schooling, learning problems. There is a searchable database for psychologists in the various regions of Hungary, who are capable of helping with various types of problems.
- Patika Magazin (Pharmacy Magazine) - www.patikamagazin.hu - was set up by an independent private Internet content provider in association with Hungarian Pharmacists' Chamber. The site provides information about health prevention, nutrition, pharmacies, and natural medication as well as civil organisations representing the interests of patients.
- www.orvos.lap.hu is a special website that itself does not provide independent content but collects and classifies (according to types, issues such as "hospitals", "dentists", etc) and hundreds of links of various websites dealing with health issues. It is run by an independent private Internet content provider.
- Large numbers of private clinics, and dentist's offices operate their own websites, where not only information about health services is provided, but which also frequently have an online registration facility. Some pharmacies and optics also operate websites ensuring e-commerce. www.pirulapatika.hu or www.lencsebolt.hu.

II.6. Acceptance and usage of eGovernment and eHealth services

II.6.1. Level of usage of eGovernment services

According to Eurostat data both in the case of citizens and enterprises a very substantial increase in usage of eGovernment services can be observed in Hungary.

In the case of individuals, Hungary lags behind only with respect to level one interaction with public authorities, while in other cases the Hungarian figures are above the EU15. In the case of the enterprise, more enterprises use the Internet for interacting with public authorities than in the EU15. The gaps are especially sizeable in the case of level one and two interactions with public authorities, while in the case of more sophisticated levels the gaps are smaller and in the case of level four, Hungary is still slightly behind the EU15 average levels.

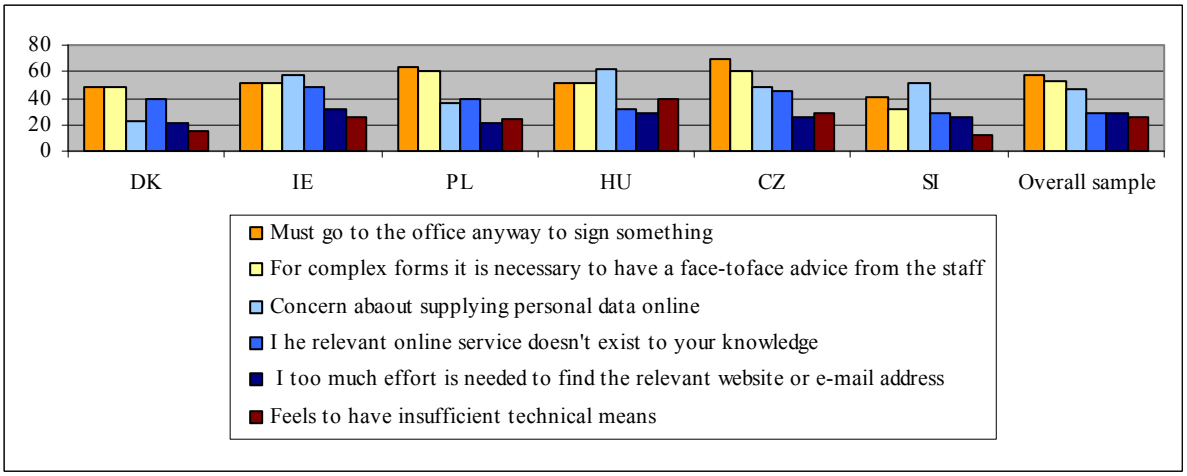
Table 15. The usage of the Internet for interacting with public authorities among individuals and the enterprise sector in % of total

	Hungary 2004	EU15 2004	Hungary 2005	EU15 2005
Percentage of individuals using the Internet for interacting with public authorities				
Obtaining information	14.9	24.1	15.1	22.9
Downloading forms	6.9	11.1	12.3	11.3
Returning completed forms	4.0	6.3	7.3	6.0
Full electronic case handling				
Percentage of enterprises using the Internet for interacting with public authorities				
Obtaining information	34	43	63	50
Downloading forms	31	40	61	49
Returning completed forms	23	26	35	31
Full electronic case handling	12	15	16	20

Source: Eurostat, 2006

The usage of eGovernment services strongly depends on the perception of actual and potential users in regard to the barriers that may exist when using these services. Charts 23 and 24 demonstrate the major ex ante and ex post concerns of users related to those barriers that may hinder the use of eGovernment services.

Chart 23. Barriers to eGovernment: anticipated barriers before usage

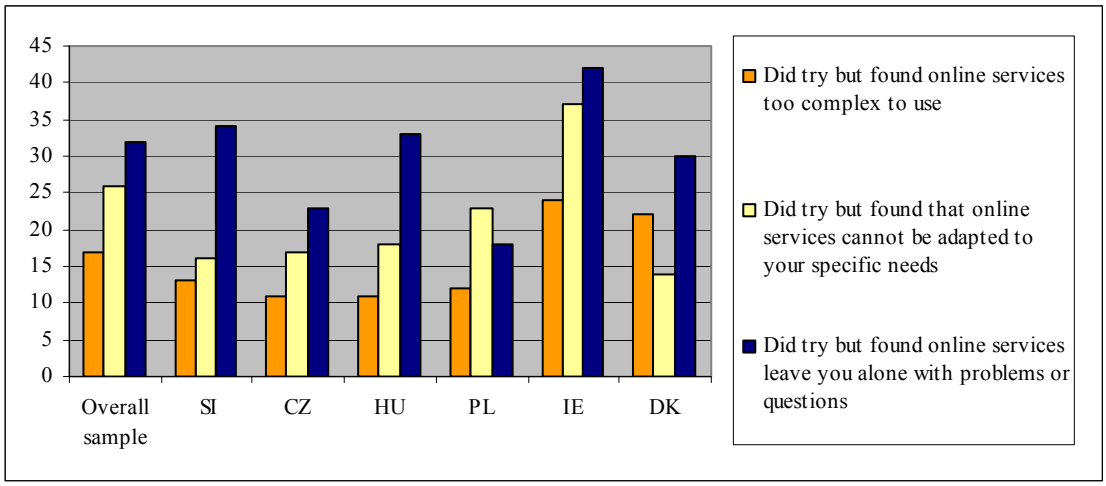


Source: eUser, 2005

The highest barrier before usage was cited as the provision of personal data online, which shows the deep distrust of Hungarians concerning the supply of data and also the quality of their handling. While the average of respondents from the total sample was 39%, the Hungarian figure was 63%, also well above the levels of other NMS in the sample. The second difference shows the problems with penetration indicators, as 39% of respondents felt that the presence of insufficient technical means is the key barrier to the access to eGovernment services, while the average of the overall sample was 26% and many individual countries had figures around 10% (Denmark and Slovenia in this sample).

All these anticipated barriers before using eGovernment are generally much higher than the barriers actually experienced once eGovernment is used as shown in Chart 27.

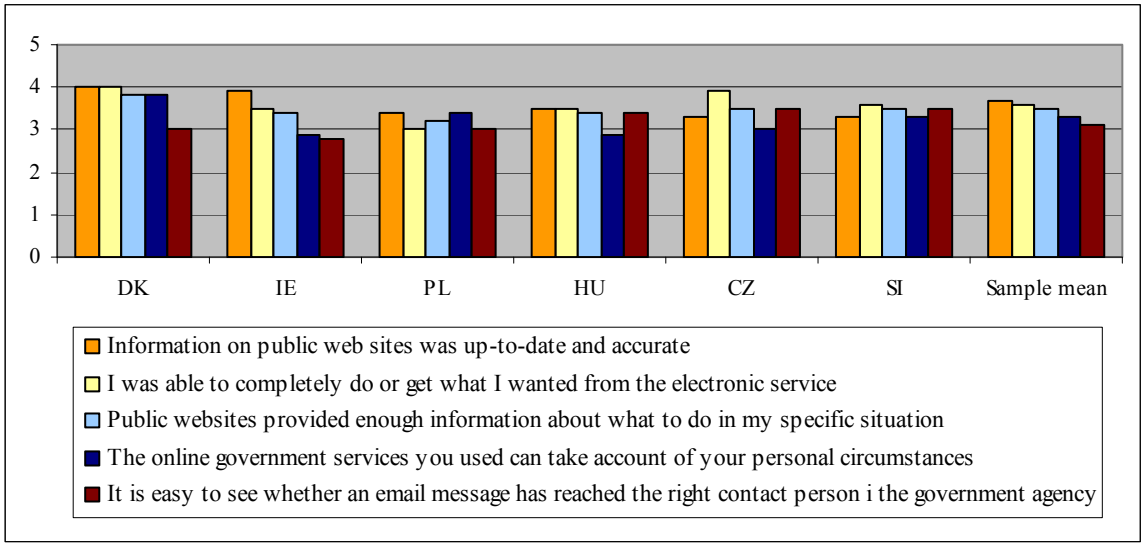
Chart 24. Barriers to eGovernment: experienced after use



Source: eUser, 2005

Chart 25 shows the level of satisfaction of users with eGovernment services, where Hungary performed worse than the average of the sample and also the majority of other NMS in the sample. The biggest differences between the Hungarian and average data were found in the case of the quality of information provided online and in the case of the personalisation of the provided services.

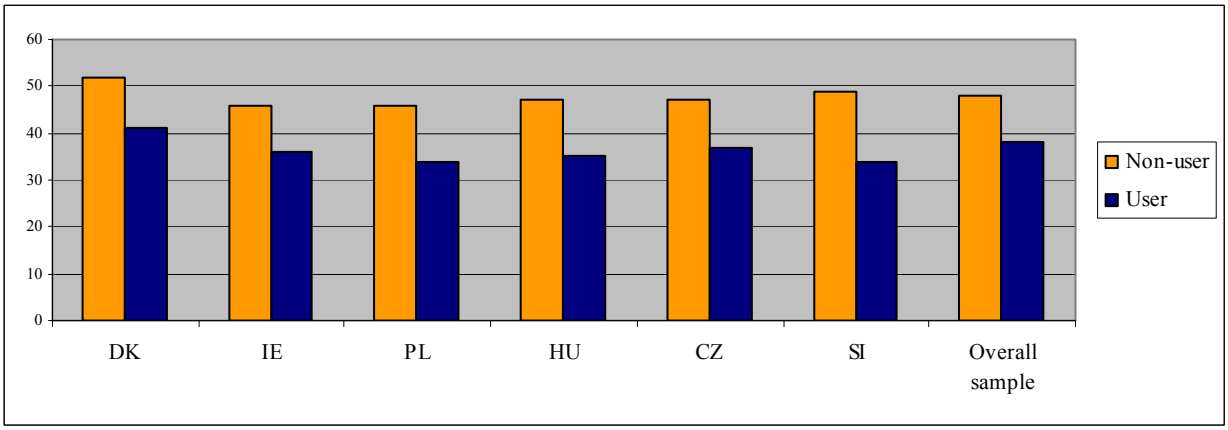
Chart 25. Satisfaction with eGovernment



Source: eUser, 2005

Far fewer users in Hungary felt that the quality and content of information provided for them was in accordance with their expectations: information was in many cases available but it was not up-to-date, accurate or personalised. On the other hand it is interesting that once communicated online with the authorities the messages and information reached the right person within the public authorities.

Chart 26. Mean age of eGovernment users/non-users



Source: eUser, 2005

Hungary has recently seen significant user interest in the "Client Gate" – a transactional gateway to the Hungarian government. A rapidly growing number of citizens and businesses seem to find the "Client Gate" relevant and useful.

Hungary has set up a government portal to support users in finding public information and eServices provided by public authorities, which must put information online from 1 January 2007. Therefore the government portal is a key entry point to the public sector.

One of the applications offered on the government portal is a participatory tool to improve public engagement in government issues. An online forum (Párbeszéd rovat) available through eGAMES (eGovernment Assessment, Measuring and Evaluation System[87]) enables online communication and interaction among citizens and between citizens and the public sector.

[87] Hungarian Government Portal (2006b), eGames, accessed on 31 July 2006, http://www.magyarorszag.hu/parbeszed_egames.html.

Box 5. Some elements of the eGames.

eGAMES is a tool to improve public participation in and discussion of government issues. To use the forum, citizens are required to register at the Client Gate, each user has the right to open a topic on any subject considered to be of interest to the public, users must identify themselves with their real names, and every user is legally responsible for the content of his/ her contributions. Users can assess each other's comments with positive and negative points, providing a value judgment on every user's participation. Apart from mutual value judgments, the number of contributions on each topic of the forum leads to a popularity index.

eGAMES can be considered as a mirror of society. By monitoring user comments, government leaders and politicians can learn what issues are important to citizens who express their opinion publicly under their own names, determine main streams of opinions on different topics, and also determine how opinion leaders (forum members who have been given more than the average points) assess different situations.

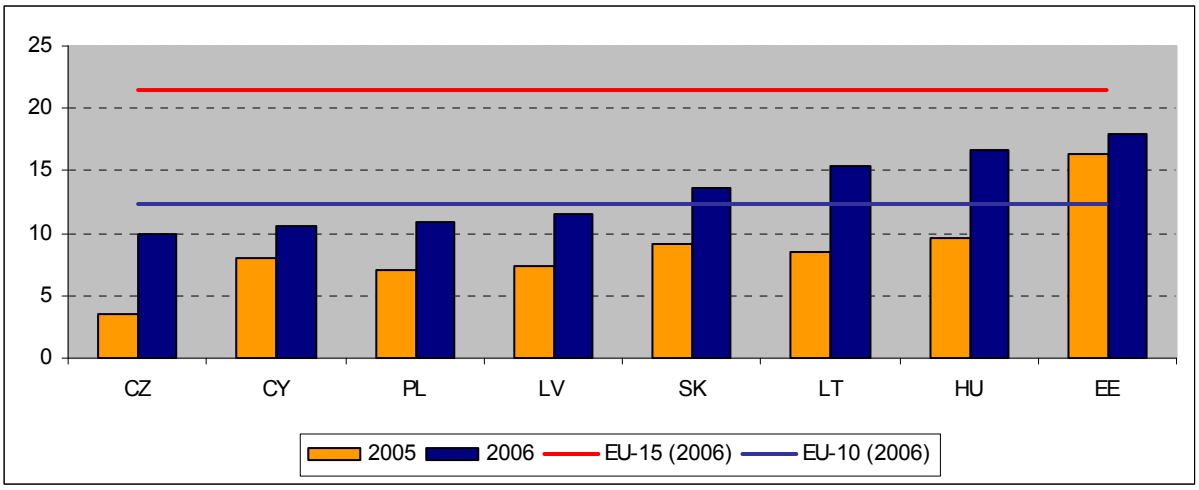
Source: OECD survey on eGovernment in Hungary, 2006

II.6.2. Level of usage of eHealth services

Due to the improvement of online health services and better access to Internet, the number of people who used the Internet to find information on health issues has increased in the last two years.

In Hungary, almost twice as many people used the Internet in 2006 to obtain information on issues related to injury, disease or nutrition, than in 2005. From this point of view Hungary is above the EU10 average.

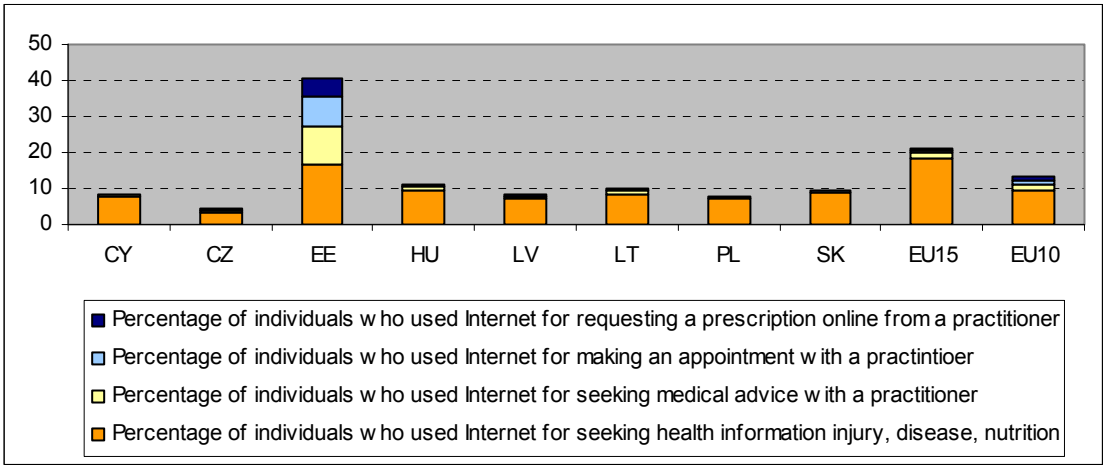
Chart 27. Percentage of the population (aged 16 and over) who used the Internet to obtain information on health issues related to injury, disease, or nutrition (2005, 2006)



Source: Eurostat, 2006

However, acceptance and use of other eHealth services, such as seeking medical advice on the Internet, making an appointment with a practitioner or requesting a prescription online is very low, and Hungary is below the EU10 average. Nevertheless, these kinds of eServices are not so widespread in EU15 countries either.

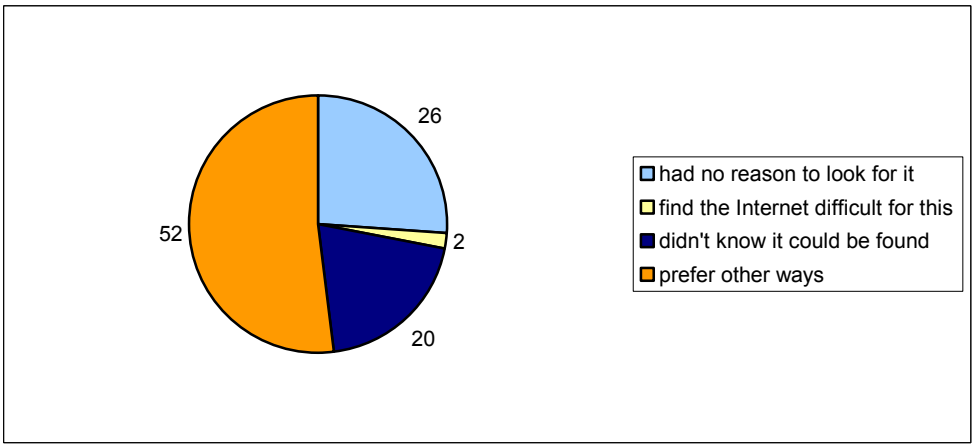
Chart 28. Percentage of the population (aged 16 and over) who used the Internet to obtain information related to health (2005)



Source: Eurostat, 2006

Reasons for not using the Internet to obtain information related to health are diverse. According to an eUser survey,[88] 26% of Hungarian people stated that they have no reason to look for it. More than half of those surveyed prefer other ways and 20% do not know that such information and services can be found on the Internet.

Chart 29. Reasons for not using the Internet to search for health information in Hungary, percentage (2005)



Source: Eurostat, 2006

II.6.3. ICT competencies and skills among civil servants

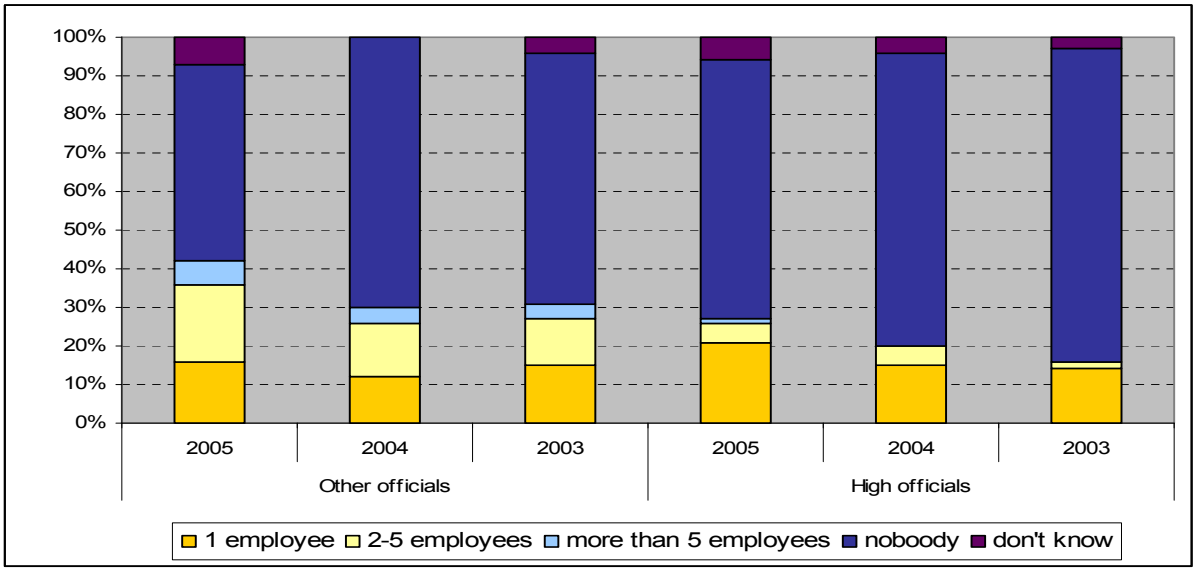
ICT skills and competencies regarding eGovernment services are challenges not only on the demand, but on the supply side as well. The Hungarian Institute of Public Administration is responsible for providing training for civil servants. Of course various kinds of in-service training is provided by ministries, local governments and agencies too. Structure and content of the training programmes are determined by four-year national training programmes. The EKK took responsibility for improving ICT skills and competencies; therefore a comprehensive programme called eCulture was developed and integrated into the eGovernment 2005 Strategy and Programme, which provides various ICT training courses.

In order to develop ICT skills and competencies, an increasing number of civil servants have taken part in ECDL training and obtained an ECDL certificate. In 2005, 49% of local government

[88] eUser: Public online services and user orientation, 2005

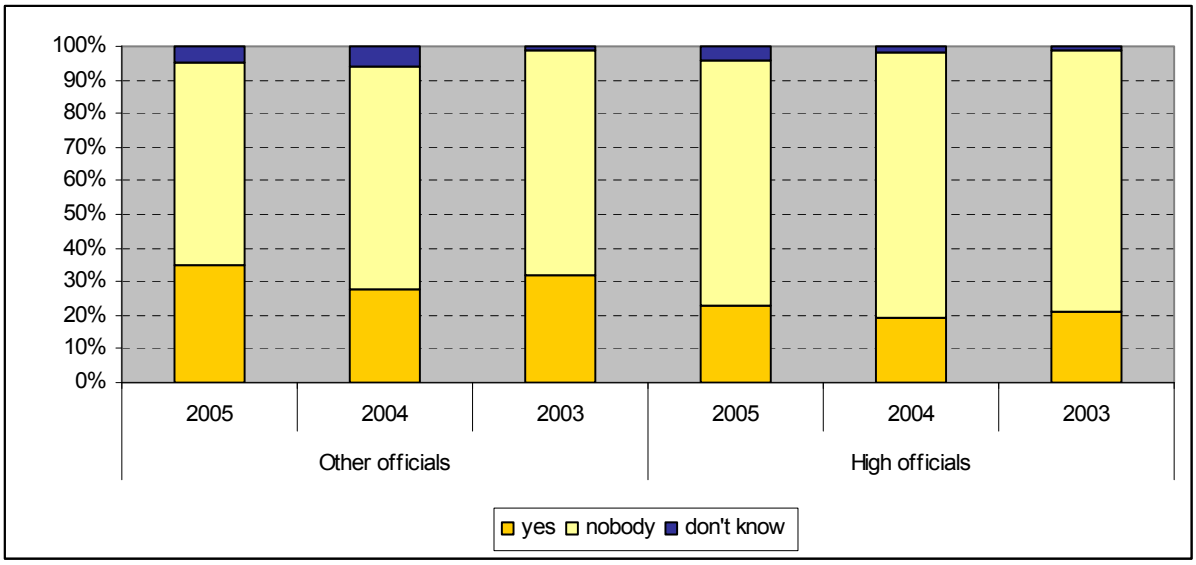
employees and 33% of high-ranking officials had an ECDL certificate. It is significant that high-ranking officials were less likely to have attended ICT courses or have obtained an ECDL certificate, than other officials.

Chart 30. How many employees of the institution have an ECDL certificate?



Source: GKIe Net Survey on ICT usage in Local Governments, in Ministry of Informatics and Communications (IHM), *Az információs társadalom 2002-2006,évi magyarországi fejlődéséről a Magyar Információs Társadalom Stratégia tükrében*, June 2006 (The development of the Hungarian Information Society between 2002 and 2006 as mirrored by the Hungarian Information Society Strategy).

Chart 31. Training courses in local governments. Has anybody in the institution attended an ICT course?



Source: GKIe Net Survey on ICT usage in Local Governments, in Ministry of Informatics and Communications (IHM), *Az információs társadalom 2002-2006,évi magyarországi fejlődéséről a Magyar Információs Társadalom Stratégia tükrében*, June 2006 (The development of the Hungarian Information Society between 2002 and 2006 as mirrored by the Hungarian Information Society Strategy).

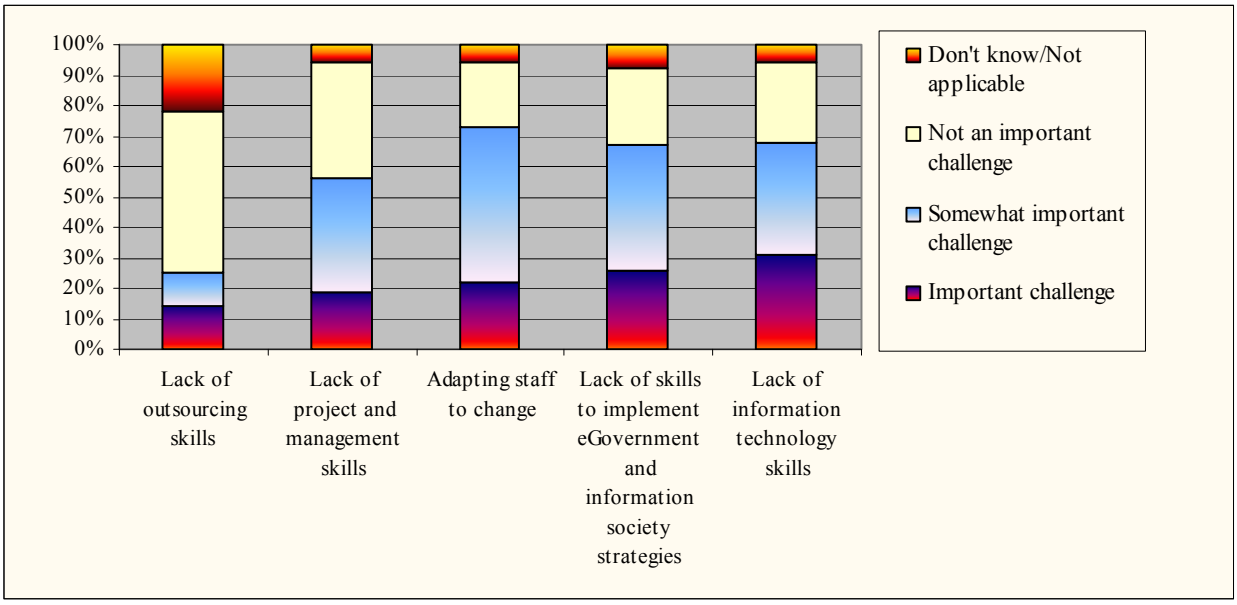
There are specific areas where competencies need to be strengthened. The results of the OECD survey (see Chart 32) show that the lack of ICT skills and ability of staff to adapt to change were considered the most important skills challenges for the implementation of eGovernment by 72%[89] and 69%[90] of

[89] 23% of respondents answered "important", and 49% answered "somewhat important".

respondents from central government, respectively. This rating is equivalent to the situation in local government, where 79%[91] and 74%[92] of respondents, respectively, cited these challenges as "important" or "somewhat important".

It is interesting to note that only 6% of respondents from local government found the lack of ICT skills "important" compared to 31% of respondents from central government. Both central and local government respondents cited the lack of skills to implement eGovernment and Information Society strategies as the second most important skills challenge (26% and 29%, respectively, answered "important"). This indicates that the government may need to increase its efforts to motivate and train staff to embrace change that results from eGovernment implementation.

Chart 32. Importance of skills challenges at the central government level



II.7. The impact of eGovernment / eHealth developments on the public sector and the healthcare systems

Since eGovernment and eHealth developments are relatively recent phenomena, there is scarce information available about the possible effects of eService developments on the public and healthcare sectors. Therefore only anecdotal evidence can be presented instead of a systematic and well-documented analysis.

There is a very close link between the reform of the services (public and healthcare) and the expansion of eServices (eGovernment and eHealth). On the one hand the reform of the services themselves should foster the use of online services, and encourage the rationalisation and extensive use of applications allowed by eServices. On the other hand the rationalisation, reorganisation allowed for by the online services encourages the healthcare and public administration units to reform their internal procedures, back offices, case handling and service provision.

However, in recent years, there has been no significant reform in the areas of public finance and healthcare. Public sector reform has been impeded by the lack of political consensus[93] and the lax and unsustainable fiscal policies pursued between 2002 and 2006. The same applies to the healthcare

[90] 31% of respondents answered "important", and 38% answered "somewhat important".
[91] 34% of respondents answered "important", and 45% answered "somewhat important".
[92] 6% of respondents answered "important", and 68% answered "somewhat important".
[93] Several basic laws, i.e. ones governing the administrative division of the country, thus allowing for the rationalisation of the local government system constituting currently more than 3,200 local governments, require a qualified (two third) majority and change in the constitution, which has been blocked by political disagreements.

sector, where, moreover, there is a lack of consensus concerning the financing, the institutional and ownership structure of the whole sector, all of which blocked the reform process.

It is difficult to assess whether the growth of eGovernment and eHealth influenced the spread of the use of information and communication technologies, some major qualifications of the information society (eInclusion, digital divide, etc.) or whether it has added to the development/deepening of Information Society. First, the time constraint should be acknowledged: these developments are relatively recent, and therefore more time is needed to assess their effect on the spread of information society in Hungary.

Second, the statistical information (even in the form of scattered surveys) is partly or completely unavailable which makes it difficult to draw rigorous and straightforward conclusions and statements. Third, it is difficult to separate the effect of individual measures: whether the recent fast expansion in broadband subscriptions is due to the increased supply of online public services, the compulsory need to declare taxes online or the fall in broadband access prices.

Considering these difficulties, there are some areas where the growth of eGovernment and eHealth services influenced the spread of ICTs. The establishment of the customer gateway and the increasing number of public services that can be reached and handled through it has indeed contributed to the rapid rise in the number of those who use them. While at the beginning of 2006 the number of registered users was less than 50,000, by the end of this year that number may have increased tenfold. Most of the users are "old" Internet users who found these services interesting and worth using, but there may be many who were influenced by these online public services to use ICTs.

A similar impact has been caused by the compulsory online tax declaration, as this forced various companies (especially the SMEs) either to upgrade their ICT facilities or use the bookkeepers to submit the declarations electronically. While there was initially some resistance to using these services, they were eventually accepted by the users who started to utilise them extensively (even creating a problem for the suppliers of the service).

The expansion of eServices has not reduced the existing digital divides and gaps. The eServices are used mainly by those who already had access to the Internet and online services. Institutions that have been able to develop eGovernment services are those that were in a better financial position or with more influence on decision makers.[94] There is still 10-15% of the population that is not reached by broadband preventing them from effectively using the eServices.

At the same time, the spread of eGovernment and eHealth services has added to the involvement of citizens, businesses and civil organisations into governance and democracy. Users have been able to more effectively monitor services, to compare service providers and provide tighter controls and faster reactions to problems. A typical example was the setting up of the customer gateway and the link providing the individual's healthcare record, which shows the health treatments and procedures carried out for her or him.

It has come to light that many users have recognised that the healthcare institutions (which are generally financed according to the number of treatments administered) accounted for never used/required treatments and widespread cheating was thus uncovered. This has led to strong public reactions and measures aimed at strengthening the supervision of financial institutions and attempts to change the incentive structure of healthcare institutions.

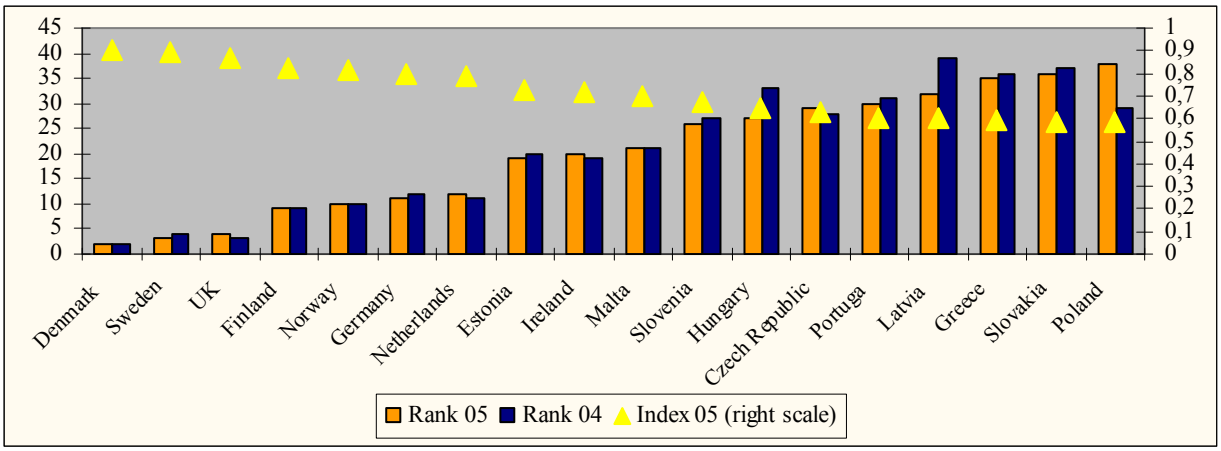
[94] The local governments are the most typical example of these differences. Those local governments have been able to develop their eServices, initiate reorganisation of their back offices, which have had more financing background and could access the available funding opportunities more easily, have been connected with broadband through the Government Backbone System, etc.

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

III.1.Hungary: overall position in eServices

Hungary has experienced a significant rise in the level of eGovernment services in the last two years, which is reflected in her position in various international comparative indices. According to the eGovernment Readiness index prepared by the United Nations (United Nations (2005), Hungary climbed from 33rd worldwide position in 2004 to 27th in 2005, which was the second biggest progress after Latvia among the members of the European Union. Hungary was ranked the 18th European country in 2005 in this index, preceded only by Estonia and Slovenia among the NMS, exceeding the level of eGovernment readiness of the cohesion countries (Greece, Spain and Portugal).

Chart 33. Country ranks in the eGovernment Readiness Report of the United Nations[95]



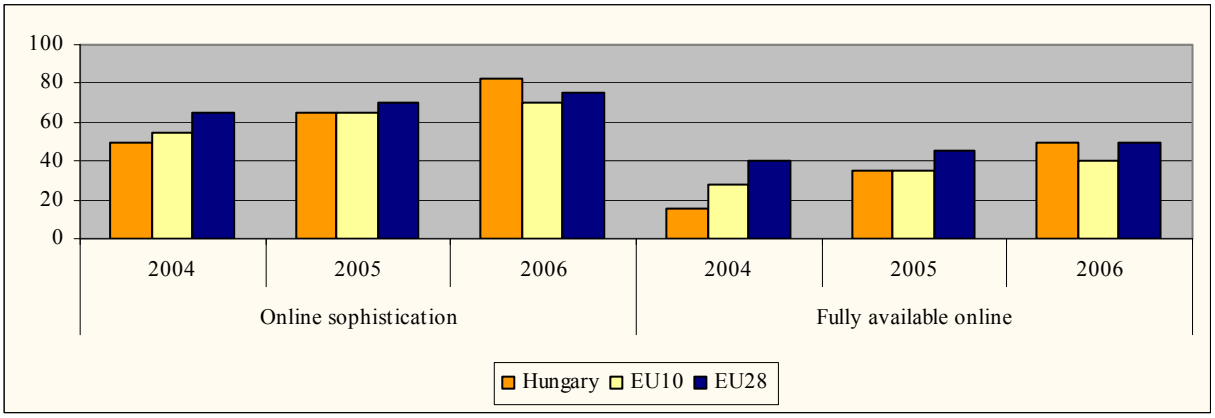
Source: United Nations: Global eGovernment Readiness Report 2005.

A similar pattern emerges when assessing the online sophistication and availability of public services in a European context. The latest survey by Cap Gemini (Cap Gemini (2006)) shows the rapid expansion of online eServices: while in 2004 Hungary lagged considerably behind the EU10 and EU28 in both indicators, in 2005 it reached the level of EU10, while the consensus forecast was that by the end of 2006 the level was expected to exceed both the EU10 and the EU28 averages.

This development means in relative numbers that while in 2004 only 15% of the basic 12+8 public services were available online (with 40% availability in the EU28), in 2006 it reached 50% on a par with EU28 and exceeding by 10-percentage points EU10 average. In terms of making public services online the development has been even more pronounced, as their level increased between 2004 and 2006 from 50% to 85% exceeding by the end of 2006 the average level of EU28 by 10, while of EU10 by 15 percentage points.

[95] The UN Global EGovernment Readiness Index is a composite measurement of the capacity and willingness of countries to use eGovernment for ICT-led development and to reflect how a country is using information technologies to promote access and inclusion of its people.

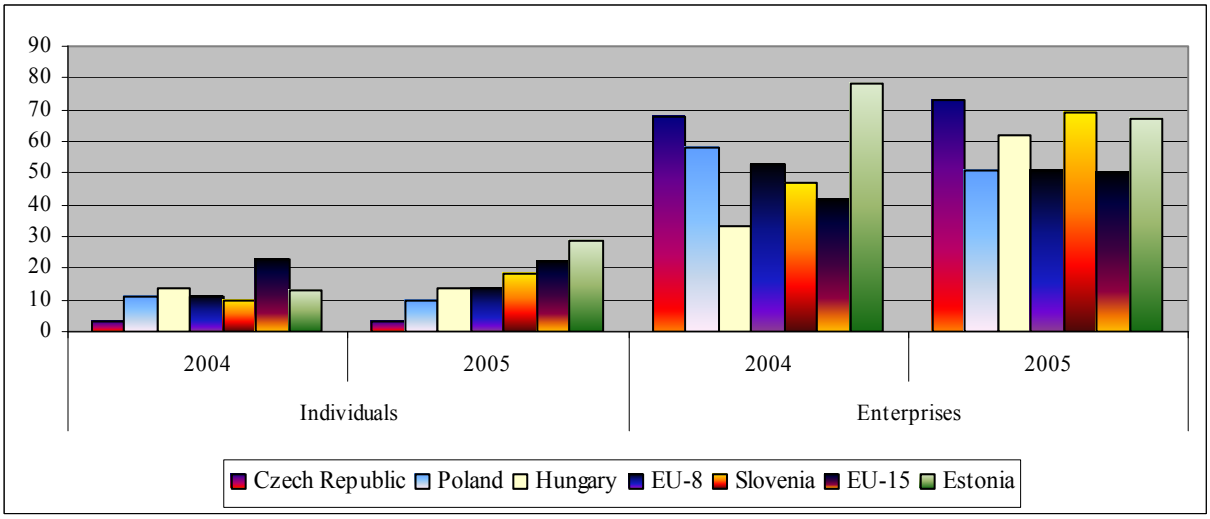
Chart 34. The online sophistication and availability of eGovernment services (in % of services)[96]



Source: Cap Gemini (2006)

Similar to the level of the supply of eGovernment services, the demand for them both in the household and corporate sectors has been increasing and reached high levels by European comparisons. In 2005 15% of the individuals interacted online with public authorities both in Hungary and in the average of EU10 (with 22% in the EU15), while the same figures for the corporate sector were 62 and 60% (with 50% for the EU15 average). When considering the fast expansion of services available online and the number of users through the "customer gate" (Ügyfélkapu), the figures for the individuals in 2006 may exceed both the EU10 and EU15 levels.

Chart 35. The share of individuals and enterprises interacting online with the public authorities(%)



Source: Eurostat (2006)

III.2. Main achievements and shortcomings

Achievements

The indicators show that the major achievement in eGovernment has been the rapid **rise of online sophistication** and full online availability of government services. The concentrated efforts since 2004 brought their results concerning the number and level of online services mainly at the level of Central government or nationwide institutions. Some of these services proved to be very popular among the

[96] Online sophistication measures the level of online availability of the basic public service. Fully available online shows the total number of basic public services that are fully (=100%) available online.

users, while others were introduced as compulsory ones, which resulted in a significant increase in the demand for and usage of these services by the households and enterprises.

Another related achievement is the **front office** change and the **improvement** in the quality, usability and accessibility of central government online information. The recent expansion of online public services has been accompanied by a significant technical improvement, unification in the design and content of public online services, and shifts towards more user friendly interfaces, which have eased the task of users and increased the quality of public information available online.

In addition to the individual public services, the main achievement was the establishment and also to a small extent the operation of the two major **entry points to public services,** the **www.magyarorszag.hu** and **www.ügyfélkapu.hu** (gateway) sites. These sites serve as a vehicle for the entry to various public services, and they have increased both the usage of other public services and generated demand for public sector online information. The rapid expansion of the gateway (the number of users increased from 40,000 in the first quarter of 2006 to almost half million by the end of 2006) was an important precondition to encourage both the increase of the content of information and scope of services handled online. A closely related achievement is that once all technical, security and motivation related barriers are considered, both business and citizens use these services intensively.

A significant achievement has been the **development of the basic infrastructure** related to public services. The expansion of broadband connection among the public institutions, the establishment of the Unified Government Backbone (EKG) and of Public Network (Közháló) linking and including institutions from public administrations and the public sector in general has been an important achievement. While this connection is a precondition for integrating more users of online public services it has also allowed and forced public sector institutions to develop their online services faster.

The final achievement in eGovernment – which came as an opposite to overall emphasis at information society developments - was the **concentrated effort at developing eGovernment** services, which was fostered by the objective to reach the level of online public service sophistication set by the European Commission by the end of 2006. This concentrated policy effort emerged despite the remaining divisions in competencies, priorities and funding opportunities between the Ministry of Informatics (IHM) and Electronic Government Center within the Office of the Prime Minister (EKK). The concentrated approach was also reflected in shifting spending priorities and funding volumes, the objective of which was to increase online availability of public services, improving the quality and accessibility of interfaces, etc. In addition to these greater efforts were made at abolishing the administrative and legal barriers to online public service developments, as well as making certain bureaucratic procedures or public services compulsory,[97] thus promoting the shift from manual to online procedures.

There have been fewer achievements **in eHealth** compared with eGovernment. The main achievement in eHealth has been the growing amount of health related **information provided** online by various public and healthcare institutions, portals and information sources.

The second achievement has been the significant – though disintegrated and very uneven among the institutions – improvement in the level of **supply of healthcare institutions with ICTs**. Notwithstanding the well known financial constraints of healthcare institutions, they have spent more on ICT hardware and software, and improved the technical background of their services, though both the quality and the reliability of these improvements is mixed among the institutions.

Finally, one could observe a fast improvement in **the level of online communication** between the healthcare institutions and the NHIFA, mainly aimed at simplifying and accelerating the reporting requirements of healthcare institutions, easing the exchange of information between the insurance and service providers. In addition to faster and cheaper communication the main aim of these

[97] An example of this is the online tax declaration, which is compulsory for bigger legal entities from mid 2006 and for all from January 2007 or the Unified Public Service Act (KET), which prescribes deadlines for handling online procedures, inquiries by the authorities.

developments was to secure the revenue base of healthcare insurance funds by reducing the access to healthcare services of those who are not insured.

Shortcomings

There are several shortcomings characterising eGovernment and eHealth developments in Hungary. The first of these is related to the services themselves and is manifested in the **unequal provision of income generating versus registration/return/permits services**. Similarly to several European countries, the income generating services (tax and customs declarations, etc.) have been developed extensively and reached a high level of sophistication. On the other hand other registration, return or permits related services remained underdeveloped, less attention has been devoted to their upgrading and fewer incentives were provided for their usage. This results in an unequal level of online sophistication of different public services, in interoperability problems among these services and slows down the internal, back office reorganisation of bureaucratic procedures.

Secondly, the quantitative development **in online sophistication of public services** has been accompanied by the weak **integration of eServices** inside the central government and among other government agencies. Services are frequently developed separately, the software and databases as well as the systems remain scattered and unable to handle issues jointly, frequently the procedures are not fully online requiring still significant manual interaction between the authorities. Moreover, there is a huge difference in the quality of service provision among the institutions: the "digital" or online quality divide is strongly present here, especially in the case of 3,200 local governments, which have very different incentives as well as the financial opportunities to develop and provide eServices. Therefore the quality, transparency and availability of eServices at the level of various central authorities, especially ministries and other nationwide institutions are very different and harmonisation is required.

The third shortcoming is related to **local government in general**. Within the general government both central government and the so-called 'deconcentrated' government institutions (national institutions with regional offices) have better online services than local governments. The latter are still unequally, and on average, poorly integrated into the Unified Government Backbone and to the Public Network, their broadband connection is frequently missing, the front office services remain limited in scope and quality (focusing mainly at level one services of providing information). Additionally, local governments are characterised by even weaker back office reorganisation supporting bureaucratic procedures and provision of online services. Though both the services and the infrastructure (especially software) requirements are similar among the local governments, online developments occur in an uncoordinated way, exchange of best practices is missing, availability of unified solutions, software is absent, leading to weakly interoperable and scattered services.

Fourth, the **lack of back office and bureaucratic process reorganisation** is the next general shortcoming of eGovernment. While front office presence improved fast, there is an increasing gap between front and back office changes: neither the administrative procedures, nor the software and hardware have developed appropriately. Back office reorganisation has been slowed down by the lack of general reform of public services during public sector reforms. The fast development of front office service in recent years could partly hide this inconsistency and weakness; however further progress requires basic restructuring of public sector institutions, their internal rules and procedures, requiring significant changes in the back offices.

A related shortcoming is the low **level of digital literacy and eSkills** among public sector employees. In recent years there has been an insufficient – and compared to other uses – low level of both in public administration, public institutional and local governments. Overall, the level of skills and competencies in public administration weakened in recent years due to the financial constraints, lack of competency and skill developments, and this was especially strong in the case of digital skills, which received less attention than management or organisational skills.

An important weakness of electronic government in Hungary is the **slow progress with eProcurement.** This is mainly due to the lack of interest from the parties involved and due to the problems with the rules and implementation of the procurement procedures. eProcurement could make public procurement cheaper and much more transparent than the current procedures, but it would

require significant developments at various public sector institutions to achieve secure and transparent eProcurement procedures. In addition to technical and organisational changes, legal changes are needed too as the current procurement rules are complicated, lack transparency, and sometimes are too rigorous and difficult for applicants to meet. Therefore changes in eProcurement should be preceded or at least accompanied by equal changes in procurement rules.

There are an **insufficient number of eHealth services** provided by healthcare institutions. This is explained by the distorted incentive structure present in healthcare financing and service provision, which does not allow cost efficient and rational behaviour of service providers. Services are provided mainly as information sources, and also the information flow between service providers and the NHIFA is relatively well developed. On the other hand there is a lack of private or public sector initiatives to develop and implement eHealth solutions, and their scope has therefore remained very limited.

The **lack of a coherent strategy to develop eHealth** and to integrate this development with the reform of the healthcare sector is also an important shortcoming. The last decade has seen increasing imbalances and tensions in the provision of healthcare services: underfinanced and wasteful service providers exist with increasing structural gaps and disparities between supplied and required skills and services, institutional distortions and rigidities. No significant programmes to target the deficiencies of the healthcare sector have been developed and eHealth was not considered as a way of contributing to the reform of the healthcare sector in Hungary. Therefore no unified eHealth strategy was developed and the progress in eHealth areas remained scattered.

III.3. Factors affecting the development of eServices

There have been several factors that influenced the evolution of eGovernment and eHealth in Hungary. Among these factors the decisive ones may be grouped to economic, information society, policy, legal and socio-cultural and demographic.

Economic factors have mainly affected the supply of eGovernment and eHealth services. One of them has been the **level of public sector redistribution** as Hungary has one of the highest levels in Europe, with almost 50% of the GDP centralised by the general government.[98] Moreover, this is associated with a high level of public employment as 25% of employees are employed in the public sector. The presence of public institutions and their diversified tasks would give the opportunity for the development of online public services, but their overlapping competencies, rigid institutional structures, and lack of appropriate back offices prevent them from supplying their core services.

A related economic factor has been the absence of **institutional and structural reforms in the areas of** major services provided by the public and health sectors. Amidst worsening fiscal imbalances recent years have seen no major attempts to reform the public sector, rationalise its institutional setup and put the public institutions into a new financing, management and service framework. The lack of systematic reforms of the public sector affecting public administration, local and regional governments, and healthcare sector has reduced the encouragement for these institutions to provide online services.

Related to this, the **institutional, ownership and financing structure of the healthcare system** is another economic factor that has affected the evolution of eServices. The healthcare sector is predominantly under public ownership controlled by local governments and several central institutions, which are funded from social security contributions. Publicly owned healthcare institutions face budgetary problems, and are underfinanced, while their institutional structure is complex, with overlapping services and competencies. Similarly, the healthcare capacities are in certain areas scarce and insufficient while in others excessive and under utilised, and these financing, ownership, institutional constraints significantly influenced eHealth developments.

[98] An additional example of the size of the government sector is the presence of almost 3,200 local governments in a country with a population of 10.1 million people, where similar countries (such as Sweden) have 700-800 local governments.

The overall **macroeconomic performance and income distribution** have an impact on the demand side. While in recent years the growth of real wages and incomes allowed households to increase their information society related spending,[99] income distribution did not improve and digital divide broadened further. Those who did not benefit from the recent expansion of disposable incomes were unable to become users of eGovernment and eHealth services due to lack of access, skills and motivation problems. While the ICT market expanded rapidly in recent years, this has not been a broad based expansion, leaving many unable to access online services due to income constraints.

While economic factors mainly affected eService from the supply side, **information society related factors** acted on the demand side. One of the factors affecting eService developments has been the evolution of major penetration indicators (PCs, Internet access, broadband access, public internet access points, etc.). The low penetration[100] inhibiting eService developments has been associated with affordability problems,[101] and lack of sufficient competition among service and equipment providers. A clear example of this is broadband development, which began in Hungary with considerable delay, and was constrained by high access and service prices, while public policies were unable to focus on bringing broadband to all users.[102] As a result, broadband penetration has remained low, though in 2005-2006 it grew much faster as some of the cited constraints eased somewhat (rapid price declines, more concentrated government efforts at linking public institutions, local governments and communities with broadband).

The second information society related factor is the level of **digital literacy** and **eSkills**. The low level of digital literacy is related to several weaknesses in the education system. These include among others the insufficient attention given to computer and other online courses by the Hungarian National Core Curriculum (Nemzeti Alaptanterv, NAT) and school curricula built on it, limited scope of training and retraining programmes, the still unequal access of education institutions to computers and Internet. Inappropriate digital literacy and eSkills are both demand and supply side factors affecting eServices, as the quality of eSkills among public servants, healthcare employees affects the provision and quality of these services as well.

The quality of government intervention is important in a catching-up economy, and **public policies** have strongly influenced the evolution of eGovernment and eHealth in Hungary. One area where public policies influenced eService developments has been the **reform of public administration and health services.**[103] The reforms were however limited and slow and disallowed the clean up of institutional responsibilities, resulted in overlapping and dispersed institutional responsibility structure. As a natural outcome of that, ICT developments remained uncoordinated and decentralised, eService policies fragmented, interoperability problems mounting. Slow restructuring within public institutions also created financial weaknesses: institutions are generally underfinanced with significant differences among similar government and healthcare institutions, while tight budget constraints force them to cut back, mostly on future related investments/spending, including eServices.[104]

Second, a generally **low priority** was given to eService developments in Hungary compared to many other EU10 countries (especially Estonia and Slovenia). Policies and strategies were adopted belatedly, their implementation and enforcement was weak, while during their implementation financial constraints became binding, as the financial background for their implementation has been

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[99] As described earlier the increase of spending propensity was also supported by various government programmes (tax concessions, publicly supported access to PCs and other kinds of equipment), which relaxed further spending constraint.

[100] Internet penetration, use of personal computers, access to broadband have been low in Hungary by international comparison, and frequently even compared with other New Member States.

[101] Caused by the high computer, Internet and access prices in comparable units.

[102] As 10-15% of the population are still living in "remote areas" (from ICT point of view) they are not connected with broadband

[103] Public administration reform means the reorganisation of central government administration, the changes in the responsibility structure and number of levels within general government, the reduction in the number of 3,200 local governments, while healthcare reform means the rearrangement of ownership structure of financial institutions, the changes in their financing structures, the rationalisation of the existing institutional setup.

[104] These services are still mainly regarded as an additional cost burden and not seen as a way of providing better services for their recipients.

insufficient from the beginning. This has not changed since the inflow of EU Structural Funds, as only moderate amounts were spent on eGovernment and eHealth.

Third, information society related **policies have remained uncoordinated**, and the decision-making structure for eGovernment and eHealth fragmented. Between 2002 and 2006 eGovernment development was shaped by a lack of cooperation and coordination among the Ministry of Informatics and Telecommunications and the Prime Ministers' Office with its Electronic Government Center. As a result, policies were scattered, programmes and competencies were overlapping, while the lack of coordination of sector policies with information society ones resulted in legal, financing and institutional loopholes.[105]

Finally, there was a **lack of unified framework policies** that could have concentrated eGovernment and eHealth development priorities. This includes the provision of unified interfaces, examples for Internet site, systematic linkages among back offices, electronically connected databases and institutions, software and management procedures applied universally in similar public institutions. This would have lowered the costs of these developments and would have provided benefits from economies of scale. However, the cited fragmented institutional structure prevented the utilisation of these advantages.

Legal factors are closely related to policy factors and affected eServices evolution. In addition to the "natural gap" in adopting several eService related laws, the general problem with the legal frameworks in Hungary is the lack of their full and time-consistent implementation.[106] There are too many "light" laws instead of a few "hard" ones: many are policy decrees stating the intentions and the need for implementation, while very few are concrete policy measures. Additionally a serious gap has been the slow progress with adopting the appropriate legal background for such vital eServices as eSignature and eProcurement.

Several **socio-cultural factors** influence the evolution of eServices. Among them the low level of trust in public institutions is important and is reflected – among others – in the general attitude towards the demand for services of public institutions. This distrust is also present in payments, data provision and other aspects. Notwithstanding the fact that data protection and privacy laws are considered to be strict in Hungary, there is a low level of trust in providing data: most Hungarians are strongly against the need for registration and generally prefer to remain anonymous.

The quality and competence of public servants is good in Hungary by international comparison, though there are significant differences among the individual institutions. Altogether even the weakest players, the local authorities have the capacities to develop and efficiently implement the determined policy actions.

Demographic factors certainly play a role in affecting eServices, especially eHealth. The declining population, the presence of several chronic diseases, and the aging of society all represent serious policy challenges for Hungary. While some of these challenges can be met by regulation, legal measures, while the provision of online health services also play a role.

III.4. Drivers and Barriers[107] to eGovernment and eHealth services

III.4.1. Drivers

Drivers of eGovernment can be linked to overarching **political goals**, such as public sector reform. Hungary has seen eGovernment development as a part of a larger political and strategic view on developing both the Information Society and the digital economy. For Hungary, the main political

[105] Moreover, frequent modifications of the structure of government have acted as a barrier as tasks, responsibilities, and budgets were frequently rearranged between and inside public agencies, restricting the opportunity to of applying long-term strategies.

[106] Many acts have been adopted but the institutional, financial background, the needed organisational changes remained out of scope and therefore the laws were not implemented.

[107] The drivers are those institutional, structural, and legal or policy related factors that may accelerate the deployment of eGovernment and eHealth services, while the barriers are the hindering factors.

driver for most policy areas has been its integration into the European Union. With the EU membership and the accession process as a national goal, Hungary has focused on European "quick-wins" within the eGovernment policy area, such as aligning policies, laws and governance structures to European Union demands.

The main political goal now is twofold. The first is to prevent the country from falling behind the average of the European economies in the level of eService provision and quality. The related goal is to increase the competitiveness and attractiveness of Hungary by providing one stop-shop services, improving the quality of public services and increasing the efficiency of utilisation of public services. The main institution driving the changes in online public services remains the electronic Government Center at the Office of the Prime Minister (EKK).[108]

In addition to these general policy goals there is a general shift in the priorities of **information society policies.** There is an increasing perception among policy makers that the main factor explaining the increasingly laggard position of Hungary is related to the weaknesses of public services, level of electronisation of public administration, poor quality of back offices and lack of links between eService and public service developments. The low level of demand for eServices, and their limited usage are strongly determined by the lack of sufficient online public services, anomalies related to eProcurement, lack of appropriate laws governing eSignature and ePayment. Therefore, increasing attention is being devoted to eService developments, which are regarded as a tool to overcome existing demand side, usage related constraints, which should substitute for past policies on infrastructure and access developments.

Changes in affordability and access to services *are* an important future driver for both eGovernment and eHealth. Due to the somewhat stronger competition among IT service providers, reduction in prices and an increase in disposable incomes, government policies oriented at improving penetration, recent affordability of access to eServices, as well as the level of basic infrastructure (within that broadband connection) have improved significantly. The improvements in affordability and access to services may be an important future driver, which may generate threshold effects, as well as overcome the insufficient level of interest and motivation among users, increasing the demand for eServices.

An additional driver for eGovernment may be greater and more concentrated **funding of online public services**. Financing constraints have been one of the decisive impediments for the uptake of eServices, and an important shift in the forthcoming years will be the increased access to EU Structural Funds and associated co-financing requirement of the Hungarian budget. The amount of available EU Funds will almost triple in Hungary.[109] If funds are used in a more concentrated way and the institutional fragmentation remains limited, then well-defined programmes may bring a significant stride forward in online public services. More funding may become a supply side driver of eHealth and eGovernment, especially if funds are also spent on public administration and healthcare institutions.

The next driver of eService developments is the inevitable **structural reform of public administration.** The rationalisation and streamlining of institutional structures, the simplification and increased transparency in internal bureaucratic procedures, the planned reduction in the number of public institutions and civil servants are supposed to be implemented partly by relying on the changes allowed by a conversion to online services. The eGovernment applications themselves may support public sector reform by supporting organisational and institutional reorganisation, by changing the human demand among civil servants, and by easing the reorganisation of procedures inside the public sector. At the same time, public administration restructuring is an important driver of eGovernment, as new organisational structures may require new technological, communication solutions within the public institutions.

An important driver could be the **implementation of compulsory rules and procedures**, including compulsory use of eProcurement within the general government, the implementation of the procedures laid down in the KET, and a shift towards compulsory electronic submission of official documents and

[108] This was also the case in the past, at least as revealed by the recent OECD survey, which shows that 55% of central government respondents point to EKK as the main driver for eGovernment in Hungary.

[109] The total available amount will rise from around 3 billion Euro in the 2004-2006 period to 23.6 billion Euro in the 2007-2013 budget cycle, which means an increase in the per capita available funds from the current 120 Euro to 300 Euro

certificates etc. More rationalised and cost effective developments will require compulsory use by similar institutions of unified registration/documentation/delivery procedures, adoption of similar software, systems and interfaces, broader implementation of best practices learnt by one institution from others, etc. This focus on a more efficient approach has already begun and should be implemented across-the-board by all institutions.

A final driver of eService is the more focused attention on **user's needs** and requirements. So far service development was driven by the need to comply with the requirements set by the European Commission. While this will remain a point of orientation in the future too, eServices developments will consider more the needs of users, which may allow faster development and digitalisation of the other 400-450 public services remaining outside the scope of the 20 main services. There is an increasing perception among policy makers that Hungary lags behind in information society developments not least because of the low level of motivation and demand from users, which could be caused by the poor structure and quality of supply of services. One possible policy option to overcome motivation difficulties is to draw more attention in developing eServices to the real demand of users.

In addition to the drivers mentioned for both eGovernment and eHealth, there are additional ones specific for eHealth. One is the need to increase the **contribution of the private sector** to the provision and financing of healthcare services. Whatever the outcome will be of recent reform plans in the NMS, one expected result is the rise in the role of the private sector as a service provider, financing unit, or supplier. Cost effectiveness, tight budget constraints, and significant sunk costs associated with increased involvement will force the players to be more sensitive towards online developments.

A related issue is the reform of **the healthcare system**, which simultaneously means the changes in ownership structure of service providers from public towards more balanced public and private one, the shift in the almost completely public insurance towards competing public and private funds, the rationalisation of the institutional structures meaning the merger of various institutions and changes in the financing of healthcare services. These reforms will require institutional changes, will lead towards more cost sensitive and service driven institutions and will change their orientation from input towards output financing. This should in all aspects lead to a much stronger need for developing, maintaining and supplying eHealth by healthcare institutions.

III.4.2. Barriers

The slow implementation of **public administration reform** can be defined as an obstacle to eGovernment. The reform requires a significant reduction in the number of local governments with independent spending competencies and institutions, the centralisation of various public services provided by local governments, a reduction of various central government institutions and deconcentrated public institutions (which are nationwide institutions with local offices, units) a general shift of competencies and funding from central and local governments towards regions and small regions (NUTS-II and NUTS-III instead of NUTS-I and NUTS-IV/V levels). Most of these changes require broad political consensus (absolute majority voting in Parliament), hurt various influential lobbies and interest groups, weaken and redefine competencies and spending opportunities: thus reforms may easily be derailed.

Within the general government the **barriers for local governments** remain a critical issue: they are the level of general government providing the lowest quality and quantity of online services, their systems are the most scattered and divided, and their usage is the lowest. At the level of local governments legal barriers, lack of integration of eServices and appropriate funding seem to be the major barriers for eGovernment implementation. In addition to that the poor management of technology, and lack of standards are also serious barriers, which also implies a general lack of skills for implementation in local governments compared to central government.[110]

[110] This is supported by the fact that almost three quarters of local government experts and employees regard the lack of skills as a challenge for eGovernment implementation.

Low level of ICT skills both on the supply and demand side can be definitely considered among the main barriers. Hungary has launched a number of initiatives to close the eGovernment skills and competencies gap within the public sector, but with only limited success. The lack of eGovernment skills remains a serious barrier, in particular for local governments.

Another obstacle to eGovernment developments is the lack of **co-ordination and collaboration** within and across levels of government, which is due mainly to the absence **of a technical interoperability framework**, a lack of incentives to work together and the lack of clear instructions.

Another important barrier is that the significant **social, regional and digital divides** will not ease in Hungary as the country entered an adjustment period, after recent years of rapid growth and rising incomes which were not associated with declining social, regional and income gaps. This is mainly related to the lack of institutional and factor market reforms needed to increase low employment rate, reduce high structural unemployment and mitigate the regional differences by allocating more funds for regional developments. As long as these structural, market and institutional weaknesses are present, digital divide acts as an important barrier to eService developments. The lessons from other countries are also not encouraging, as rapid catch up and convergence per se do not lead to declining regional and societal differences unless the appropriate labour market, education and other reforms are implemented.[111]

While the availability of increased funds for information society developments is a driver, recent experiences on their **use and spill-over effect** raise caution. The experiences of the previous Structural Funds programmeming period showed that due to limited capacity of public administration the focus was on absorption to use the available funds to the fullest possible extent rather than on the quality of projects supported and their effects. The funds were used for a multiplicity of purposes, the synergies and spill over effects from spending remained moderate, as the main priority was to use all funds to increase the absorption capacity.

There is little indication of increasing **administrative capacity** for the upcoming programmeming period. The lack of focus in spending may take place during 2007-2013 unless well-defined priorities for spending are set. For this to happen, clear visions concerning the driving factors of Hungarian competitiveness and cohesion are needed, appropriate polices should be aligned with these visions, and a limited number of priorities and funding purposes should be set.

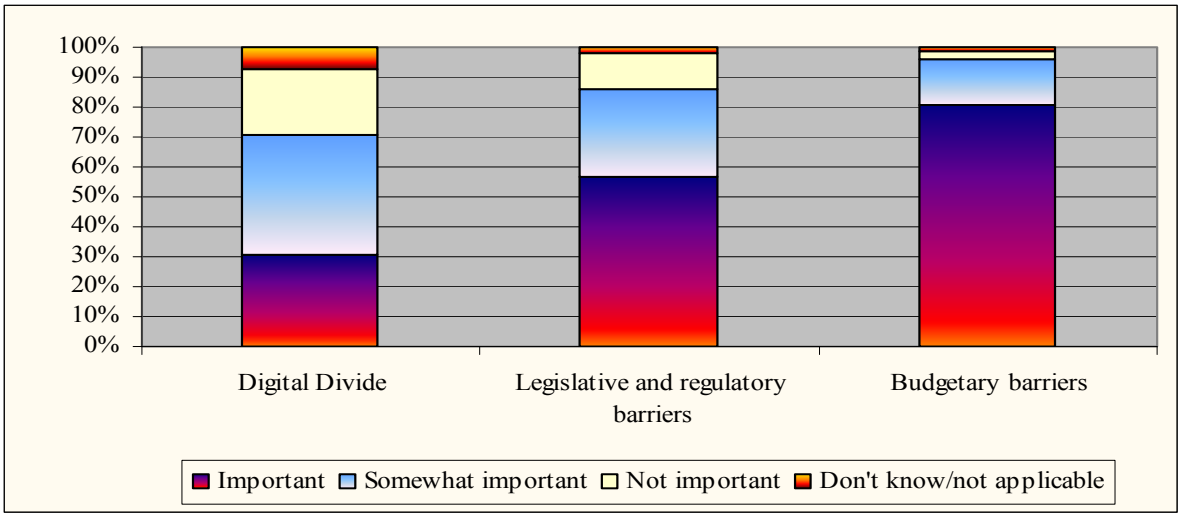
The main barrier to the provision of better and broader eHealth is the **increasing divide** within healthcare institutions. One almost natural impact of the foreseeable reforms is the increase in the differences in the status of various institutions. Some institutions will benefit from the reforms, but most of them will lose out due to tighter financing constraints, a reduction of their areas of responsibility, etc. While this is a natural and desirable outcome in the long-term, in the short-term in may slow down eHealth developments.

It is interesting to put the perceptions stakeholders hold about the major impediments for eGovernment at the end of the list. According to an OECD survey[112] the budgetary barriers are considered to be the most serious problem for eGovernment development in Hungary, followed by **legislative and regulatory barriers,** and the **digital divide** (31%). The comparatively low rating of the digital divide among external barriers by respondents may reflect that eGovernment in Hungary is still in its transition from the start-up phase to more mature services. As usage and supply of eGovernment services depends on the physical infrastructure and skills of users and suppliers, divide is an important challenge to eGovernment.

[111] This reasoning is in line with the trade-off theory, which shows that inside the EU national convergence is associated with increased divergence in the level of development of regions inside the countries.

[112] OECD survey on eGovernment in Hungary, 2006.

Chart 36. External barriers to eGovernment development



Source: OECD survey on eGovernment in Hungary, 2006.

IV. ANALYSIS OF POSSIBLE POLICY OPTIONS AT LOCAL, REGIONAL, NATIONAL AND EUROPEAN LEVELS

This chapter reviews those main policy options that are available for policy makers to facilitate eGovernment and eHealth developments. The available policy options are broad based and range from structural reforms in the two domains to the quantity and quality of eServices offered by public and healthcare institutions, to basic human and physical infrastructure developments.

1. Public and health sector reforms. The most essential measure should be an overall reform of public administration, which would change the prevailing model of the public administration system, which is static, closed and hierarchical and in general very unfriendly to eGovernment solutions. Instead of the prevailing one, a flexible, user-oriented, less hierarchical for decision-making, and interactive public administration is needed.

There are several aspects of the public administration reform that influence eGovernment developments, including the restructuring of public administration, reduction of the general government from the current five tiers structure (national, regional, county, small regions and local ones) to either three or four tiers with the redefinition of the competencies of each tier, reduction in the number of local governments (more than 3,200) in order to reduce the number of spending units, the reduction of the scope of public administration and bureaucratic processes involved inside public administration units.

This reform would have to change public administration motivation and functioning, at both a national and municipal level. This public administration reform is complex as has already been described earlier, but it would bring various benefits and would help in eliminating the currently widespread gaps. These gaps include the insufficient knowledge in public administration on which eServices are to be implemented; how it is possible to have a complete-life-cycle of the service, including training, improving and promoting; how is it possible to use the best business models and technologies to save costs and to serve the use, and how invest in training to improve the qualifications of public servants providing eGovernment services.

In healthcare the reforms are directed at rearranging the institutional set up of the healthcare sector by integrating the institutions that provide similar and sometimes overlapping services, and at increasing the financial responsibility, independence and cost sensitivity of service providers, and at much broader involvement of the private sector in the provision of healthcare services. All these measures will lead to more cost sensitive service providers, to rationalisation of services themselves and to increasing demand from users, where eHealth applications may play a significant role.

eHealth should be a part of health reform to utilise its positive impacts. Reforms in healthcare have broad goals of improved quality, efficiency or access and the necessary reforms must take place regardless of the application of eHealth, and smart use of technologies can facilitate the reform process. Thus these structural reforms must take place regardless of the application of eHealth, while the role of eHealth is to foster or enable the achievement of certain goals. The health sector related reforms are directed at reshaping financing models and achieving a more proactive approach towards private sector involvement, at reforming the incentives of medical workers to foster the utilisation of eHealth applications and at changing the institutional and structural features of health service providers.

2. Restructuring back offices. In recent years the progress with online public and to a much smaller extent health services has focused on the front office keeping the internal back office structures mainly unchanged. This is chiefly because of slow progress in redefining the role of the state in providing health and public services, the lack of progress in rearranging administrative procedures and rules internally, the presence of serious counterincentives at all levels of public administration against allowing a broader scope for eGovernment applications. While since mid 2006 the programme of the newly elected government includes various elements of public finance reform, including the rearrangement of existing institutions, streamlining and rationalising both the services provided by the

public sector and the service provider themselves, so far the eAdministration and eGovernment approaches have not been connected to the reform of these institutions.

An important direction for policy makers is to rethink the role of online public services in the provision of public services, to use the savings and rationalisation provided by digital solutions and to incorporate the development of eGovernment into the reform of public institutions and services. The back offices should be prepared to be able to handle electronically submitted requests,[113] they need to rearrange internal administrative and documentation rules, should be ready to follow and monitor the individual cases and respond to on- and offline requests from users. Part of the changes needed to reach such a level of back office development is technology dependent, but most of the efforts should come from the organisational, incentive and human resource management areas.

3. Efficient use of eService funds. An important policy issue is the provision and efficient utilisation of funding for eService developments.

In the forthcoming years Hungary will predominantly use the Structural Funds to finance part of the reforms in the public administration. Two operative programmes will be established: one will be set up to finance the infrastructure investments needed to accomplish these reforms, while the other will be established for human capital development and organisational changes that can complete the institutional changes.

The amount of spending dedicated for the 2007-2013 period (in the range of 0,75 billion €) seems to be appropriate in terms of the financial requirements of major developments. It is a vital policy issue to use this funding for the most important bottlenecks, to spend them for such developments, which may generate sizeable spill over effects and additional spending and contribution from the private sector.

One has to be aware of the fact that the funding coming from the European Union is however sufficient only for major eGovernment related developments. The 0.75 billion € may be sufficient to cover the major infrastructure developments, but unless the local governments, the major central government institutions (ministries, other government units) do not increase their spending on ICTs and do not regard these developments as beneficial and not cost increasing, they will be insufficient to reach the needed move forward in these areas.

The involvement of private funding may extend the scope of sources for eGovernment deployment and may take place in several forms: allowing the provision of certain services by the private sector, PPP solutions and multi-stakeholder partnership with the inclusion of IT companies.

Available research indicates significant potential for more efficient use of funds for ICT at all levels of government. Fragmentation in procurement of hardware and software is costly. Experts[114] have pointed out that even with existing eGovernment applications some are duplicating functions available within the central government portal, often at a significant cost. Although there have been efforts at tracking IT purchases across government departments, the Government needs to develop a system of planning and procuring technologies that would exploit scale economies and support interoperability. At the level of budget allocation, concrete project proposals of the institutions and municipalities should be considered. Public funding should be provided to eGovernment projects according to their quality, and by having a major prerequisite - proven demand for the services and saving for public administration – fulfilled.

A crucial policy option for eHealth development is the enlargement of pools available to finance investments: the sources may come from the public and private sectors as well as from abroad. As

[113] However, a similar back office rearrangement is needed where the users are allowed to submit their requests in traditional offline ways (for the digitally less advanced users, for those who need a personal case dependent service provision, etc.) this off-line submission should be transformed to online service provision and a quick response to requests.

[114] Next steps in developing Information Society Services in the New Member States: The cases of eGovernment and eHealth. Hungary, January 2007. Budapest, mimeo
Next steps in developing Information Society Services in the New Member States: The cases of eGovernment and eHealth. Latvia, January 2007. Budapest, mimeo

most of the healthcare units are public institutions, they need to increase the proportion of eHealth applications in their budgets, while national healthcare programmes should increasingly rely on and devote funding for eHealth solutions. On the other hand the involvement of private funding is crucial for both health and eHealth development. Private sector involvement can take place in several forms: by entering private funding into the system, by privatisation of healthcare units, by applying PPP solutions in a broader scope, by developing ICT skills and deepening multi-stakeholder partnership with IT companies.

The final area of financing eHealth is the Structural Funds: these funds should be used to reduce the most important bottlenecks, to spend them for such developments, which may generate sizeable spill-over effects and additional spending and contribution from the private sector. In addition to these Hungary should tap such special EU funds as eTEN, FP7 IST for financing eHealth developments and/or research.

4. Local government support and funding. For local and regional governments, the major choice lies in the level of integration with the efforts of central governments. Since responsibilities at the two levels of sub-national self-government are similar across individual governments, there is obvious scope for efficiency gains through joint approaches to developing eServices by regions and municipalities together. Services can be integrated across municipalities/regions and/or with services of the central government. There should be more cooperation between central and local governments in policy planning and the design of policy instruments, as well as in service delivery. According to the widely recognised one-stop-shop approach, all public sector services must be available from the 'same window', be it the central government, city or rural municipality. Thus more emphasis should be put on local governments especially in key policy strategies.

For progress in local and regional governments, many think that central governments need to make financing available to local governments to develop eGovernment. Funding from structural funds in the previous programming period was focused on infrastructure for local governments, which is undoubtedly necessary before eServices and back-office applications can develop. While there will be significant financing available again in the current programming period for sub-national governments, it will inevitably only cover a certain number of projects and a certain number of recipients.

The threat for interoperability may come from the reform of the public and to health sectors as in most cases this will bring along more independence for the players, which will make it harder to ensure interoperability of the system. In the case of health insurance services, interoperability and data sharing is an important new challenge for the health insurance system. Similarly, greater independence for the medical sphere, most importantly for hospitals, will require more harmonised and interoperable solutions in eHealth databases and technology, while maintaining competition among the players.

5. Coordinated public procurements and standard setting. There are several areas, where coordinated practices may bring significant savings and progress in eServices. One of them is coordinated procurement, which in addition to allowing a significant reduction in expenditures will support the development of uniform, transparent and integrated applications inside the central government. Another area of coordinated measures is the front office of the service providers: portals, web sites of the major ministries have been unified but there are other front offices inside the general government, where this harmonisation is still missing especially at the level of local governments. Third, a centralised approach may be needed when standards and procedural rules are established concerning the provision of online public services. These rules should be uniform across similar public sector institutions in order to be comparable, interoperable and measurable.

6. Widening delivery channels of eServices. Government also has an important role to play in widening delivery channels for eGovernment and eHealth. There are households who opt not to have a PC and Internet at home, but several households may have access to other potential delivery channels of eServices such as digital TV or mobile phones. For socio-cultural reasons, the take up of digital TV may be relatively faster than that of Internet and other technologies, which are not associated primarily with entertainment.

The recent survey of Cap Gemini has pointed out that in several countries (most notably in Austria) mobile Government has experienced a fast take-up. The report also emphasised the advantages of

digital television in providing a broader access to online public services and broadening the scope of their users. While these two and other applications have their limits in usage, they provide new opportunities for the use of online public and healthcare services.

Both mobile penetration and television usage are much higher in Hungary than Internet or PC penetration and their acceptance is also more widespread, making them a suitable technological tool for using certain online public and health services. In the case of mGovernment the provision of appropriate services suitable for their usage by mobile telephones is needed, while in case of digital television - where 2012 was set for the final switch from analogue to digital broadcasting - the legal regulations concerning the adoption of digital television and the policies stimulating the switch from current analogue to digital usage are needed. The government should provide an appropriate regulatory framework to encourage technology providers to allow broader use of eServices, and in addition should provide a competitive market environment in the case of alternative technologies, and finally, should adopt neutrally alternative technological solutions.

7. Physical and human infrastructure developments. An important policy issue is to provide sufficient physical and human infrastructure for eService developments. In physical infrastructure there has in the recent years been a widespread expansion of the Unified Government Backbone System (EKG) and Public Net (Közháló), but there are important areas, where the development and upgrading of infrastructure is needed.

Firstly, 10-15% of the population is still not covered by broadband, which prevents users from connecting themselves to these services and service providers (mainly local governments or regional service providers[115]) from bringing their services online. To reduce the level of unconnected areas and integrate these remote areas, the government should lend its support through direct spending and by demand aggregation to the build up of broadband connection in remote regions that are less lucrative for private investments.

Secondly, healthcare and public institutions (both at the level of central government and even more at local and regional levels) need significant upgrading and rationalisation of their IT facilities, hardware and software. Both the level of PC penetration and usage and the integrity of applied systems are far from the required minimum standards. In addition to regulatory changes this requires more hardware and software purchases as these institutions increase their IT budgets, and a change in the perception of IT spending.

Besides being physical human capital and its development is also an integrated and important element of improving the infrastructure of online services. One of the major impediments inside the public sector institutions is the low level of eSkills of public servants, which has been a neglected area of development in recent years. Training and retraining programmes, education and skills development, and unified curricula for public servants are needed to make visible changes in this area.

Related to this, there is a need for the enhancement of the population's eSkills in order to raise the level of digital literacy, which would ease the use of online public services and provide an increasing demand by encouraging and motivating potential users. The major tools are appropriate curricula, and the inclusion of much broader use of education with computers and ICT equipments. While this is a longer-term process for the younger generation, there are various social groups (elderly people, the disabled and others) who need to be tackled through special courses and education tools to increase their awareness and raise motivation to use online services.

8. Broadening the scope of online public services. An important policy measure is to broaden the scope of public services provided online. In Hungary recent developments and progress has focused on the 20 services regarded as vital by the European Union, but these are only a minor part of those services that can be provided online for which there may be a demand from the users.

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[115] According to the GKI-Synergon survey, in 2005 53% of the local governments have broadband access, which should be compared with 22% in 2004 and 10% in 2003. This growth has been significant and as the majority of local governments that have broadband connection are the bigger ones, covering a higher proportion of the total population, almost 85%-905 of the population is reached physically with broadband. The remaining 10-15% is however difficult to deal with, and it is time consuming to reduce this digital divide.

Firstly, a much better understanding of the demand for services is needed: recent developments were driven by the assumed need to comply with the European achievements and measurement priorities and less with the requirements of users. Therefore there has been no compulsory or structured survey to assess the requirement of both the citizens and corporate sector for online public services. The first task is therefore to regularly monitor users' requirements and produce an updated report on the preferences of users for online public services, which would then influence developments.

Secondly, there is a need to persuade several institutions with a "stick and carrot" approach that could play important roles in the provision of eServices, but most of whom have so far neglected these issues. This refers mainly to local and regional government units, but also to several central government institutions, including certain ministries. They should integrate their databases, services with each other; and rearrange internal procedures in order to comply with back office requirements.

Finally, the legal changes are also an important integral part of the supply side measures deemed necessary for eGovernment and eHealth developments. In the legal area there are various issues that need to be solved with certain rules that should be introduced, some should be modified and some "only implemented". The central role played in this are is the KET and the regulation of the duties of public institutions in terms of the time allowed handling the electronically submitted documents.

9. Implementing major eHealth projects. There are several key projects that involve implementing national health information systems that focus on basic national Electronic Health Record systems and eCards. While the first steps have been carried out in this direction, a further policy issue is to design and introduce ePrescription and eOrder forms for medicinal products and medical devices as well as a national, accessible database of medicinal products which will include all medicinal products used for medical treatment of patients: registered, unregistered and those registered according to the centralised authorisation procedure. Another database needed is an official national database of medical devices with classification.

10. Legal measures. Legal measures may also constitute an important element of public policy priorities, where the role of policies is multitask and depends on the impediments. In some cases (such as eSignature) there is a need to find such solutions and then codify them that simultaneously to gain the trust, and to protect data and security thus answering users' concerns. In other cases (the main example being the KET) the legal measures should be directed at dismantling those inconsistencies that were created by the legal rules themselves. For example, the KET prescribes overly strict deadlines for unprepared institutions to handle electronically submitted requests; this leads either to the total neglect of the requirements by several local governments or to unnecessary and sometimes costly developments.

In other cases, the legal changes are related to the services themselves and afterwards these changes should affect electronic services too. In the case of eProcurement no significant increase in the interest of potential bidders may be generated as long as the procurement rules are so complex, and difficult to administer as in Hungary. As long as the minimum level of procurements is not raised, procurement procedures are not softened, documentation and legal procedures are not eased and harmonised, and there is little chance of increasing the popularity and usage on eProcurement.

11. Contributing to demand generation. As the development of eServices in Hungary still depends on the access of users to physical infrastructure, there is still a policy option to encourage the use of ICTs by citizens, including Internet, broadband and in certain cases even PC access. In recent years some centrally managed programmes were successful in increasing the demand for ICT hardware and software. There are two lines of policy action, which may bring additional demand for ICT services and goods.

One is the provision of various fiscal incentives (tax deductions from personal and corporate incomes taxes in the case of small and medium sized enterprises, which have much worse indicators than the big companies) to support the access to ICT hardware and software. Another major element, which may help is the deregulation of the access to these services, including local loop unbundling, and opening the market to broader competition between infrastructure and service providers. Several studies have indicated that the use of broadband by citizens is very cost sensitive and positively reacts to the decline of prices below a certain threshold level. The price decline requires both very active

competition policy to break the current monopolistic or monopsonic market conditions as well as active promotion of competition by fostering the entry of new service providers, reducing the barriers of entry and maintaining fair competition between service providers.

V. THE MAJOR RESEARCH AND DEVELOPMENT CHALLENGES AFFECTING E-GOVERNMENT AND E-HEALTH

The assessment of the development level of eGovernment and eHealth services has determined several research and development challenges that need to be tackled in more detail in the future. These R&D challenges are divided to three major groups:

1. Evolution of eServices
2. Provision of eServices
3. Assessment of their economic impact

1. Evolution of eServices

Personalising both eGovernment and eHealth services. While in Hungary the major task is to increase both the number of service provider online and the number of online users, a future research and development issue is how to personalise public services. There is an increasing trend in more advanced countries for these services to be tailor-made and thus adjusted to the needs of individual citizens. In order to reach this stage users' requirements should be closely monitored, and the information provided by the users should be interpreted and applied appropriately by the service providers, while the relationship between service users and service providers should be reversed with providers playing the active and the users the passive role.

In this research challenge, infrastructures, platforms and interfaces need to be accessible to users in different formats, including the different variety of channels, such as digital TV, PC, mobile, etc. This challenge is also about linking a public administration's back-office(s) to personalised, adaptable interfaces taking into consideration the user profile and preferences. Current practice has focused on delivering services to all citizens through different interfaces, by concentrating on improving portal design, rather than looking on new interfaces design. More efforts are needed in the definition of adaptable personalised user interfaces accessing different channels. Research is also needed on the role of the electronic channel as a 'backbone', and into the mixed strengths and weaknesses of each type of technology channel, focusing on how these influence the perceptions of public and health organizations.

Supporting and adjusting to technological convergence. As mentioned before both mobile services and digital television have the potential to encourage the provision of certain eServices. These technologies are unable to allow the use of all eGovernment services; however, they may allow the development of new ones.

Further research is needed to determine the preferences and motivation of users, when selecting between personal computers, mobile or a digital TV connection to use online public and healthcare services, to assess which services may be switched to mobile or digital television provision which both have greater acceptance and popularity among the final users than personal computers, to evaluate which services could be brought online for users through these two technical possibilities.

Enhancing trust and security. Trust and security are concerned with building and maintaining trust and confidence between all stakeholders in all directions, for example in relation to network and data security, data protection, identity management, authentication, privacy, surveillance, and digital rights management. Research is needed to ensure trust and security between government and citizens and the civil sector as users of eServices. Massive data transfers and exploitation between service providers and the users require sound data protection based on legal, technical and institutional safeguards and standards.

2. Provision of eServices

Determining users' needs. This challenge looks at the needs of users, whether as groups (communities), or individuals, and tries to formulate a way of dealing with the variety of different user preferences. The challenges that lie ahead are manifold, and cover many different domains; they include the political challenges of creating 'user-driven services', which will be far more likely to appeal to citizens than user-centric services. Research is required into the direct needs and requirements of citizens and civil users, whether as individuals, families, households, communities, civil sector organisations, NGOs, etc., or within specific localities or regions. This should cover citizen relationships with public servants and healthcare providers, user skills, expectations and activities in relation to public administration and healthcare services. It includes the context of use, service initiation and control, the delivery environment, service visibility/fundability, utility/usefulness, access/availability, and service quality and fulfilment in relation to the specific citizen user or group.

Involving the private sector in the provision of eServices. As the scope of online public and health services is broad, there is a increasing room for the private sector in their provision. In the case of eHealth services, this is natural, as a significant part of the healthcare institutions and service providers are in private ownership. In the case of public online services, it is more difficult to determine the areas, which could be outsourced to the private sector due to privacy, data protection and national security reasons. However, there are several public services, where these concerns are of less relevance or can be dealt with which call for a more extensive reliance on PPP solutions and other forms of private sector involvement in service provision. An important research and development challenge is to assess the areas and approaches, where the outsourcing of the core activities related to eServices may bring benefits compared with the current situation.

Integration and interoperability of public organisational units. This key research challenge focuses, in terms of integration, on the interoperating of public organisational units. In terms of interoperability, the theme covers technical, semantic and organisation levels, as well as standards, in order to achieve seamless and joined-up activities, which are device or platform independent and able to replace or cope with legacy technologies, architectures and systems.

In order for eGovernment and eHealth applications to work across networks, systems must be interoperable and it must be possible to integrate them. To this end, research needs to be carried out to gain an understanding of how public organizational units should work together to ensure that systems and applications are completely interoperable. Research can work towards enhancing the relationships between citizens and public administrations due to the increased perception of ease of use of eServices.

This is related to the so called 'one-stop-shop' idea that has been around for some time in eGovernment research circles and also to the integrated healthcare platform idea that has been promoted by the health sector. Whilst much work to date has been done on integration and interoperability, from a technical perspective, there is still the need to carry out work in the institutional issue area: the workings of public administrations, the way they share data and knowledge, and the way data is transferred between different departments and institutions must be examined

3. Assessment of economic impacts of eServices

Performing cost-benefit analyses. The development of online public and healthcare services has so far neglected the measurement of costs and benefits. This has been related to two linked issues. On the one hand developments proceeded without considering and estimating the real indirect and direct costs of the eService developments decided on. While the direct costs associated mainly with front office developments were more measurable and considered, the indirect ones related to the reorganisation of broadly understood back offices, were generally not calculated.

Cost-effectiveness is not the only criterion for admitting the benefits of an eService solution, as they should be benchmarked among others on quality of service, increased solidarity, consumer and staff satisfaction, etc. Therefore the cost benefit analysis should be seen from another perspective: if the gains are distributed fairly, if the solidarity of the health system and public sector will be maintained

or even increased, and whether or not eServices will improve access and responsiveness for vulnerable and marginalized groups?

Measuring the usage and impact of eServices. Regarding eGovernment services public impact assessment focuses at a high level on public value outcomes (public value and the contribution of eServices to it). In the past very little research has been undertaken on the direct impact of these services on high-level social and regional policies, and there is a need to measure their effect on growth and employment, as well as on regional and social cohesion.

Regarding eHealth the actual and potential usage of online services is very limited and rarely measured, and thus it has practically no effect on the decisions concerning eHealth developments. The closely linked R&D challenge is to develop appropriate indicators and procedures to measure the real utilisation and impact of eHealth. Currently the actual and potential utilisation of eHealth is rarely measured and considered when making decisions on health sector developments. Appropriate indicators and methodologies should be developed to assess the effect of eHealth on patient-doctor visits and related time savings, on errors made in the healthcare system, on savings made from the more efficient monitoring of social security contributions, and control of healthcare spending. In addition to economic impacts the broader social and welfare effects of better and more equitable access, improved life conditions, independent living for the elderly and disabled should also be considered.

Further research is needed to understand the impacts of eServices on social and regional developments in order to improve policy making and on the measures needed to achieve these targets. Research on the impact of eServices on the quality of life including health, welfare of workers and consumers (as well as citizens) needs to be further developed.

Monitoring eService developments. A related R&D challenge is the problem regarding the measuring and monitoring of eService developments, assessing the likely impact of these changes on growth, and other macroeconomic variables. The research challenges in this area include:

- developing indicators that would measure and allow monitoring of user satisfaction,
- developing indicators that would measure the usage and impact of each eService on users,
- setting up cost a calculation of eService implementation and operation in public administration institutions.

Assessing the overall effects of eServices on the economy. There are no reliable studies and estimates on the net effects of online public service developments on the level of employment in the public sector, and linked to this in the private sector, on the changes and quality of public services, and on the productivity improvements related to the changes in the composition of employment and tasks inside the public institutions. The lack of efficiency measurement and of the SWOT analyses results in the general perception by public servants, that most of the ICT developments just create costs for public administrations, thus reducing their motivation and cooperation. Better understanding of the loss and revenues from the expansion of online public services is needed to have a clear overview of its impact on employment, output, efficiency, and savings both in the public and private sectors.

Evaluating and benchmarking eServices. This is a challenge related to focusing on the overall outcomes of eServices, particularly of monetary costs and benefits, the business benefits, burden reduction measures, ROI, added-value, as well as overall evaluation frameworks and methodologies. It is also concerned with eServices benchmarking, e.g. the rollout and take-up of services.

Barriers exist in the methodological domain, where, for example, the impact on individual users is very difficult to measure, and given that the public sector deals with a diverse range of needs from diverse groups of citizens, the 'user' can rarely be treated as a homogenous entity. The focus has, until recently, been on the supply side of eServices, and the demand side, however, the challenges that emerge in such a topic need to be addressed much more efficiently.

VI. CONCLUSIONS

The background of eServices

Hungary is a middle-income economy with a per capita GDP measured in Purchasing Power Standards (PPS) in 2005 at around 13,500 Euro (62% of the EU15 average), placing the country in third place among the EU8 countries. As a result of rapid GDP growth, in the last decade Hungary was successful in reducing the income gap with the EU15 (in 1998 the per capita GDP measured on PPS was 54% of the EU15 average). While compared with the EU15 average economic growth in Hungary has been robust, in comparison to the EU8 it has been less spectacular. In terms of labour market indicators, Hungary is a country with low unemployment and low employment/activity rates. Its unemployment rate in 2006 was the second lowest - together with Latvia and following Slovenia - in the EU8.

A critical element of the macroeconomic performance of the Hungarian economy is the state of public finances. With its average general government deficit equivalent to 7.5% of GDP between 2002 and 2006, Hungary recorded the worst fiscal performance in the EU8 and its general government debt level was the highest in the same country group in 2006. The level of centralisation and redistribution[116] in Hungary is high, compared to the country's level of development and the level of economies of a similar size and per capita GDP: in 2006 general government expenditures slightly exceeded 50% of GDP, while the centralisation rate was 45%.

The Hungarian population has been shrinking in recent decades due mainly to the high death rate compared to other countries: in 2004 the death rate was 3-4 percentage points higher than the average of the EU10 and EU15. In addition to shrinking, the Hungarian population is also aging. While life expectancy has not been increasing and has remained low compared to the average of the EU15 and EU10, the proportion of the population over 65 has grown constantly, and this group currently represents 15.3% of the total population. Life expectancy of the population is lower in Hungary than the EU15 average and remains below that of the EU8. One reason is the higher incidence of certain illnesses and causes of death (for example cardiovascular diseases, and deaths related to cancer and digestive illnesses) compared to the average of EU15.

The level of development of eServices

Hungary has experienced a significant rise in the level of eGovernment services in the last two years, which is reflected in its position in various international comparative indices. According to the eGovernment Readiness Index of the United Nations Hungary shifted from its 33rd position in 2004 to 27th in 2005, and was ranked 18th among the European countries, preceded only by Estonia and Slovenia among the NMS and exceeding the cohesion countries (Greece, Spain and Portugal).

The latest surveys reveal the rapid development of online eServices: while in 2004 Hungary lagged considerably behind the EU10 and EU28 in both online sophistication and full online availability, by the end of 2006 the levels exceeded both EU10 and EU28 averages.

In relative numbers this means that while in 2004 only 15% of the basic 12+8 public services were fully available online, in 2006 this ratio reached 50%, exceeding the EU-10 average by 10 percentage points. In terms of online sophistication the development has been even more pronounced, as its level increased between 2004 and 2006 from 50% to 85% exceeding by the end of 2006 the average of the EU10 by 15 percentage points.

In Hungary the 12+8 services are divided further resulting in 27 online services. Out of them eleven could be reached at the highest level: out of them five at level four on the four degree scale (Registration of a new company, VAT declaration and notification, enrolment in higher education/university, corporate taxes declaration and notification, income taxes declaration and notification of assessment), while six on level three on the three degree scale (job search services by

[116] Centralisation reflects the part of GDP collected by the government as revenues, while redistribution is the level of expenditures relative to GDP.

labour offices, job announcement to the database on labour offices through the Internet, driving licences, public libraries (availability of catalogues and search tools), announcement of moving (change of address), submission of data to statistical offices).

There were some differences between the level of sophistication of online public services available for citizens and business. In services to business almost 90% could be reached either at level three or four, while for citizens it is much lower. As in other countries, the most rapid developments were observed in the case of online tax declarations both in regard to the business sector and citizens.

Similarly to the level of the supply of eGovernment services, the demand for them both in the household and corporate sectors has been increasing. In 2005 15% of individuals interacted online with public authorities, while the same figure for the corporate sector was 62%.

Achievements

As said the major achievement in eGovernment has been the rapid **rise of online sophistication** and full online availability of public services. There has also been a progress in the changes of **front offices** and in the **improvement** in the quality, usability and accessibility of central government online information. Besides the individual 12+8 public services, the establishment and to some extent operation of the two major **entry points to public services,** the **www.magyarorszag.hu** and **www.ügyfélkapu.hu** (gateway) sites were also noteworthy positive developments.

A significant progress has been the **development of the basic infrastructure** related to public services: the expansion of broadband connection among the public institutions, the establishment of the Unified Government Backbone (EKG) and of the Public Network (Közháló) linking and including institutions from public administrative organisations and the public sector in general.

There have been fewer achievements **in eHealth** compared with eGovernment. The main one has been the growing amount of **health related information** provided online by public and private health care institutions, portals and information sources. The second positive aspect has been the significant, though very uneven among the institutions improvement in the equipment of **health care institutions with ICTs**. Finally, **the level of online communication** (declarations, notifications, reports) between the health care institutions and National Health Insurance Fund (NHIFA) grew fast.

Shortcomings

There are several shortcomings characterising eGovernment and eHealth. The first of them is the **unequal provision of** income generating versus registration/return/permits **services**. There is an insufficient development of services aiming at increasing service level to the citizen (registration/return/permits) compared to those which generate income for the government, such as tax declaration services.

Secondly, the quantitative development in the online sophistication of public services has been accompanied by the weak **integration of eServices** inside the central government and among other government agencies.

The third shortcoming is related to the low level of development of **local governments** as inside the general government both central and deconcentrated government institutions (national institutions with regional offices) have better quality online services. Fourth, the **lack of back office and bureaucratic process reorganisation** is the next general shortcoming of eGovernment. An important weakness of electronic government in Hungary is the **slow progress with eProcurement.**

A related shortcoming is the low **level of digital literacy and eSkills** among public sector employees, which has become more visible after the recent expansion in online provision of public services and which may constitute an obstacle for further developments.

In eHealth there is an **insufficient number of eHealth services** provided by health care institutions. This is explained by the distorted incentive structure present in health care financing and service provision, which does not allow cost efficient and rational behaviour of service providers.

Factors affecting eGovernment and eHealth

Economic factors have mainly affected the supply of eGovernment and eHealth services. One of them has been the **level of public sector redistribution** as Hungary has one of the highest levels in Europe. A related factor has been the absence of **institutional and structural reforms** in the areas of major services provided by the public and health sectors. The development of online public services with these reforms could have been even faster thanks to back office reorganisation, shifting incentives, changing employment structure in public institutions.

The **institutional, ownership and financing structure of the health care system** is another economic factor that has affected the evolution of eServices. The health care sector is predominantly under public ownership, services are provided by institutions controlled by local governments and central government units (ministries), and are funded from social security contributions. Due to frequent reforms, policy and priority changes the institutional, ownership and financing structures in the health sector have been unstable affecting adversely eHealth developments.

The overall **macroeconomic performance and income distribution** have their impact on the demand side. While in recent years the growth of real wages and incomes allowed households to increase their information society related spending[117], income distribution did not improve and the digital divide broadened further.

Information society related factors – which represent mainly the physical and human access and availability preconditions of online services - played a role on the demand side. One of the factors affecting eService developments has been the still low level of penetration (especially in EU-25 comparison), combined with the overall uneven and low level of **digital literacy** and **eSkills** related to weaknesses of the education system.

The areas and quality of government intervention are important in a catching-up economy, and **public policies** have strongly influenced the evolution of eGovernment and eHealth in Hungary. A negative influence was exerted by the practical absence of the deep rooted **reforms of public administration and health services.** Besides that **low priority** was given to eService developments compared to policy priorities of many other EU-10 countries. Policies and strategies were adopted belatedly, their implementation and enforcement was weak, and during their implementation financial constraints usually became a constraint. Finally, information society **policies have remained uncoordinated**, and the decision-making structure for eGovernment and eHealth was fragmented.

Policy options for eService developments

The available policy options are broad based and range from structural reforms in the two domains to the quantity and quality of eServices offered by public and health care institutions, to basic human and physical infrastructure developments.

1. Public and health sector reforms. The most essential measure should be an overall reform of public administration, which would change the prevailing static, closed and bureaucratic model of the public administration to a flexible, user-oriented one, more flat in decision-making.

2. Restructuring back offices. An important direction for policy makers is to rethink the role of online public services in the provision of public services, to use the savings and rationalisation provided by digital solutions and to incorporate the development of eGovernment into the reform of public institutions and services.

3. Amount and efficient use of eService funds. An important policy issue is the provision and efficient utilisation of funding for eService developments. In the forthcoming years Hungary will predominantly use the Structural Funds to finance part of the reforms in the public administration. The amount of spending allocated for the period 2007-2013 (in the range of 0.75 billion €) seems to be appropriate in terms of the financial requirements of major developments. However, the funding

[117] As described earlier the increase of spending propensity was also supported by various government programs (tax concessions, publicly supported access to PCs and other pieces of equipment), which relaxed further spending constraint.

coming from the European Union seems to be sufficient to cover only the main eGovernment related developments (physical infrastructure) and several areas (local government services, eSkills and digital literacy of public sector employees and users of eServices) remain underfinanced. The involvement of private funding may extend the scope of sources for eGovernment deployment and may take place in several forms: allowing the provision of certain services by the private sector, PPP solutions and multi-stakeholder partnership with the inclusion of IT companies.

4. Local government support and funding. For local and regional governments, the two major issues are the level of integration of their investment efforts with central government and the coordination among the local and regional governments. Since responsibilities at the two levels of sub-national self-government are similar, there is obvious scope for efficiency gains through joint approaches to developing eServices by regions and municipalities together.

5. Coordinated public procurements and standard setting. There are several areas, where coordinated practices may bring savings and progress in eServices. One of them is coordinated procurement, another area is the front office of the service providers (as portals and web sites of the major ministries may be unified), and a centralised approach may be needed when standards and procedural rules are established concerning the provision of online public services.

6. Physical and human infrastructure developments. An important policy issue is to provide sufficient physical and human infrastructure for eService developments. In physical infrastructure there has in recent years been a widespread expansion of the Unified Government Backbone System (EKG) and Public Net (Közháló), but there are important areas (as local governments, public hospitals, general practitioners), where the development and upgrading of infrastructure is needed.

7. Broadening the scope of online public services. In Hungary recent developments and progress has focused on the 20 services regarded as vital by the European Union, but these are only a minor part of those services that can be provided online and for which there may be demand from users. Firstly, a much better understanding of the demand for services is needed allowing for better targeted provision of them. Secondly, there is a need to use the "carrot and stick" approach to persuade several institutions (local governments, hospitals, various branch ministries) that could play an important role in the provision of eServices. Finally, legal changes are also an important integral part of the supply side measures deemed necessary for eGovernment and eHealth developments

8. Contributing to demand generation. As the development of eServices in Hungary still depends on the access of users to a physical infrastructure, there is still a policy option to stimulate the use of ICTs by citizens, including Internet, broadband and in certain cases even PC access.

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Abstract

In 2005, IPTS launched a project which aimed to assess the developments in eGovernment, eHealth and eLearning in the 10 New Member States at national, and at cross-country level. At that time, the 10 New Member States were Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, 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, Hungary.

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

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