



REGIONE CAMPANIA



Best Practices in the European Countries

HUNGARY

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The views expressed do not imply the expression of any opinion whatsoever on the part of the United Nations and of Italian Department for Public Administration, and Formez.

Towards e-Health

The latest strategic document on Health Reforms in Hungary is the “Johan Béla National Programme for the Decade of Health”, approved in 2002. It aims to achieve a three-fold increase in life expectancy for both men and women by the end of the decade. It’s been considered an innovative programme because of the introduction of principles of more cooperation among society and government (different roles but an active roles) in health care [WHO 2004a] but it doesn’t mention the concept of Information Health. Notwithstanding this, the *e*-health innovation is going on in the country within the Information Society process. So, in order to single out the origins of *e*-health in Hungary it is necessary to observe *e*-government programmes rather than Health Care Reform. *e*-health is an important chapter in the *e*-Hungary plan known as the Hungarian Information Society Strategy for the period 2004-2006.

The antecedent of *e*-health programme is indeed the *e*-Europe, i.e. the Information Society for all (consists also of faster Internet access for citizens, education, commerce, government)¹.

The Healthcare System

The Hungarian Health System is based on a comprehensive Health Care System. Today the compulsory social insurance system covers the whole population and provides practically a full range of services with a marginal role for supplementary insurance [WHO 2000].

The Health System is made up of private and public sector. The public management of Health Service is divided into central and local administration: the central state is involved above all in the regulation and in defining policies, meanwhile the local one manages the facilities even if using national funds. Health services are delivered either by local and central administration (municipality and State) but they are controlled by the government that keeps its role of supervisor.

The bodies and the model

Hungary adopted a health governance system similar to other European Countries (Sweden, Norway and Denmark and Latvia) . The service provision is just organised on a county basis.². The ownership of the bulk of primary care facilities, polyclinics and hospitals has been transferred to local governments (counties and municipalities): two tiers of local self governments - independent counties at the intermediate level and municipalities at the basic level - share the responsibilities for organization and provision of *primary and secondary health services* while *tertiary care* remains a state responsibility [EU/WHO 2004].

- Municipalities are responsible for planning and ensuring the provision of *primary health care*.
- County hospitals provide *secondary care* to the populations of their respective counties (in district general hospitals).

¹ Even if many surveys reveal that Europe suffers different types of digital divide and the ICTs are less widespread than in the USA, there is in Europe a notable advantage in mobile network development and mobile phone usage. For this reason these technologies should be always considered inside *e*-health strategies.

² It is considered a reason for unequal geographical distribution and new legislation is required to ensure the quality control and accreditation standards for hospitals. It is widely accepted that there is excess hospital capacity in Budapest and considerable shortages of medical staff in some rural areas [WHO 2004a].

- Municipalities – in polyclinics, dispensaries and small hospitals - provide some *secondary and specialized care*.
- Municipalities - in dispensaries, hospices and university hospitals - provide *tertiary care*.
- The national government – in its own hospitals – provide *acute and chronic care* as well as *rehabilitation*.
- The national government runs also national clinics and institutes devoted to *specific diseases* (cancer, alcoholism, mental illness, sexually transmitted diseases etc.).

How the insurance works

The social insurance scheme is financed by employers’ and employees’ payments or thanks to public sector [Box 1]. The state has replaced the former tax-based health care system with a contribution-based insurance system [WHO 2004a].

Box 1: Hungary: the Social Insurance scheme in 1998

<i>beneficiaries</i>	<i>payer</i>	
	employer	himself
employee	11% of total income	3% of the total income
self-employed		about 15% of the total income
unemployed people	public sector covers the payments	

SOURCE: WHO 2000

The insurance covers all costs related to health check-ups, primary, secondary and tertiary care, deliveries, emergency medicine and blood transfusions. Pharmaceuticals, medical aids, dental care and rehabilitation are also included in the insurance scheme, but out-of-pocket payments are always required [WHO 2000]. In some case such as sickness, maternity or occupational disease, or accident some compensation are planned.

Today the administrative body in charge of managing Health Insurance and covering health care expenditure is the **National Health Insurance Fund** (NHIF). The NHIF’ tasks are such as follows:

- purchasing health care services for the insured (calculate and pay the benefits),
- directing the regional and other administrative bodies,
- operating the health insurance branch system, getting involved in preparation of legislation,
- preparing and implementing bilateral international agreements regarding health insurance,
- developing and operating the data base of the health insurance system,
- collecting, processing and analysing the statistical data of the health insurance system.

The NHIF covers the health expenditure with some sources as follows:

- direct contributions from wages (Box 1)
- general taxation (to cover people who are entitled to coverage but cannot contribute to the Fund)
- assets that the central government makes available.

Local government budgets also include some health spending.

The NHIF is a separate administrative organisation under the supervision of the **Ministry of Health, Social and Family Affairs** in fact the Fund is led by a **Director General** appointed by the **Government** on the basis of Ministry recommendations [WHO 2000].

The Director is responsible for the administration of the central and regional offices.

Administrative organisations belonging to NHIF are:

- the **Budapest Metropolitan and Country Health Insurance Directorates**,

- the **National Institution of Medical Experts**,
- the **Railway Social Security Directorate and the Journalist Division**.

Health system reforms

The early 90s left a mark and despite the economic crisis and the political changes, the health reforms started again. In 1992 the **Social Insurance Fund** was divided into a **Health Insurance Fund** and a **Pension Insurance Fund**: in this way a financing system based on insurance was introduced. But even if at the beginning the Pension Insurance Fund became self-governing, it was nationalised again in 1998. It is supervised by a secretary of state of the **Ministry of Finance**. Regarding funding, the reforms allowed the separation between costs coming from government (central state and local) and one coming from the Social Insurance Fund, i.e. the recurrent costs of direct health services funded.

The Health System reform has been largely influenced by the liberalization, privatization and decentralization process started in early 90s.

Maybe the most important healthcare innovation was the one relating to family practitioners that seems to be the starting point of the new health system.

In Hungary, in fact, before 1992 the family physicians were public sector employees with an obligation to provide primary care to the inhabitants of the area assigned to them. But in order to deliver the health cares and above all the primary cares and the preventive cares, the family practitioner was introduced, a figure closest to community at micro level. In less than 4 years all citizens choose the primary health care practitioner. This rapid increase was due to the fact that everyone could freely choose the physician and some incentives were established to help the practitioner such as a common entrepreneurs [WHO 2000]. Today the local government pay, on the basis of registered patient, the General practitioners (GPs): about 76% have private practices and are contracted by their local governments and about the 21% are government employees with fixed salary. Only 3% run independent practices without municipal contracts and receive capitation fees from the insurance fund only if they have registered more than 200 patients [WHO 2004a].

Others achievements in reform path are:

- The successful transition from an integrated health care system to a contract system in which providers and purchasers are separated
- Transferred ownership of most primary and secondary care facilities from the central government to the local governments
- Some practices (dental, general and pharmacies) have been privatized
- The role of GPs strengthened
- Establishment of the national health insurance fund
- Setting up of the administration necessary to manage the national health insurance fund
- Introduction of quality standards for health services [WHO 2004a].

The priorities

According to WHO reports the distribution of *primary health care* is unequal in terms of quantity and quality. In the recent reforms and within the ongoing strategies the priorities are: *a) Improve the prevention; b) Improve rehabilitation; c) Improve the home nursing services.*

In the *secondary and tertiary care* instead the priorities are focusing on the possibility of providing in the existing centres more outpatient specialist services because of the necessity of cutting public expenditure and improving the quality of services.

As for the *Hospital Sector*, it seems to need deep modernization. Especially the management of resources, because it is too much expensive and sometimes highly inefficient. It needs above all much more coordination, in fact some hospitals are:

- Community hospitals, offering basic specialties with a high level of presence (everyone can access to an hospital within 25–30 kilometres)
- 19 County Hospitals and the Metropolitan Hospitals in Budapest, that in many cases provide the specialties
- National institutes and departments of medical universities, that carry out regional and national activities

Since 1996 some attempts to reorganize hospital sector has been planning. The only evident consequence was the halving hospital beds [WHO 2000]. Moreover the rationalization strategy for hospitals envisages closing facilities at every level, not just in small towns [WHO 2004a].

The Healthcare Expenditure: a brief comparison with the reference countries

The most recent assessment on health expenditure in Hungary is from 1997. In that year the Health Expenditure was about 6.5% of GDP, quite higher than the average of other reference countries³.

Also health expenditure per capita is one of the higher respect the reference countries.

The Hospitals represent the largest part of Government budget, about the 80%. Outpatients Care and Primary Care use the rest of resources.

There is a surplus of health supply. For example, the availability of hospital beds (833 beds per 10,000 pop.) is higher than the average of reference countries (739) notwithstanding the decreasing of hospital beds since 1985.

One of the reasons for such inefficiency is also the increase in the volume of buildings and hospital beds that happened in the 1960s. Only with economic liberalization and the entrance of private investors into the health market, new investments were assigned to diagnostic and therapeutic equipment [WHO 2000].

In this context the inpatient admission rates increased considerably more than the reference countries (above all in the early 90s). Also the outpatients are increasing and the rate reached in 1998 one of the highest among reference countries⁴.

Regarding health personnel, the supply of physicians in Hungary is greater than in the references countries and the EU. But dentists, nurses, midwives are less numerous –compared with population – than in the other countries.

Today the situation of health personnel is better than 10 years ago but many questions are still open. So for example most doctors are public employees who receive fixed salaries (except for GPs). Some figures have few incentives (for example the nurses, who don't have prestige or career perspectives). Many personnel reduction accompanied the cut in hospital beds [WHO 2004a]

The low income of health professionals has been one of the most important stimuli in reforming the healthcare system. So quite recently there was the introduction of remuneration based on performance. Today it is allowed for direct medical services. The outpatient specialist is paid retrospectively on the basis of fee-for-service points and disease-related groups for acute care (i.e. a scheme of the medical procedures they perform) meanwhile the primary care services in the performance based remuneration are paid pro-capita. [WHO 2004a]. The GP receives capitation fees. Some additional incentives are allowed too [WHO2000].

The Information Health

³ The reference countries are Slovenia, Czech Republic, Slovakia, Estonia, Lithuania, Poland, Bulgaria, Latvia, Romania.

⁴ Annual outpatient contacts per person is in Hungary 13,7 in a range between 4,6 and 15,1.

The Information Society is considered a great possibility of reforms for the Hungarian Administration. It is a useful and necessary model to improve the competitiveness of all the system and also a tool to realize governance, that is people participation not only as clients but also as beneficiaries.

The Hungarian Information Society Strategy (HISS), whose strategy is summarized in the plan “**eHungary 2004-2006**”, remarks the importance of “information health”. e-Health means, in fact, the application of IT to improve treatment, diagnostics and therapy. Only thanks to a wider use of technology and information it will be possible to contain the cost and, at the same time, to assure the wider access to medical consultations.

On the basis of an information network and coordination for Health System, is the Information Society model: the spread of ICT, more education and information, e-governance. All these issues represent the framework of e-health society.

The e-Government

e-government is a very special chapter in public administration reform because of the possibility of improving the level of IT in public service delivery and pushing the diffusion of IT among the population. It needs a big rethink in the PA. It is much to overcome considering that before 1990 in Hungary it was impossible for a private citizen to get a telephone line in the private home and mobile and broadband were introduced only in the late Nineties. Today ICTs, are already used widely at national and local government levels. The Hungarian Government has been investing many resources in e-government and many results have been achieved. First of all according to the official programme, e-government is a prerequisite in order to be efficient and successful in public service delivery.

The e-government programme is often referred to local government because at local level the relation between government and community is tighter and the local public administration seems more disadvantaged in the quality of its public communication (in fact in many cases the websites of local public entities are managed by private citizens or without any kind of updating).

The body in charge of e-government planning - and the implementation of IT in Public Administration - is the Government Commissioner (IKB).

In this context a very important issue is the electronic signature, which received its own regulation; also e-procurement. As everyone could imagine, e-government is both content of and a container for the Information Society.

Notwithstanding the many constraints, the country is moving towards the Information Society⁵. It's almost banal to say that these limits include a low level in digital skills, especially in civil servants; Local and central Public Administration are still too far apart to be in a network, i.e. that the two main levels of Public Administration can't exchange information using IT technologies.

⁵ The best example of the spreading of Information Society in Hungary is the *Hungarian telecottages Model* that is very peculiar. In fact despite the fact that the digital divide is often more evident in rural areas, the telecottages are becoming more widespread also in the rural areas. In this way rural populations can have access to the Internet. In the last ten years 200 telecottages have been created and they are managed by NGOs that use also national policy and national government funding. A former socialist country develops a telecottage system built on local NGOs with community ownership and management even using a centralised planning. In few words, the Government gives some grants and support to local governments or private firms to manage the cottages. The Hungarian telecottages provide the common services related to IT, such as for example teleconferencing facilities (institutions or businesses pay a fee for it); and very often also training courses which are paid for by trainees' employers or by the individuals themselves. Moreover it is not unusual that in these telecentres some social services are provided to the population: blood-pressure measurement (provided by 25% of the telecottages in 1999); computer games (offered by 94%); social services assistance (44%) [UNPAN 2002].

However, the official portal of Hungarian Government (www.ekormanyzat.hu) functions and offers news, cases, database.

The projects undretaken and the good cases

The most important project undertaken by the IKB to introduce and carry out the *e-government* in Hungarian Information Society includes the customer friendly management of Public Administration; the information exchange among different units and administration tier; and information network. Apart from the one aimed at implementing *e-health* in the Country- such as for example "National Health Insurance Medical Card System"- a key role is attributed to the creation of Official Websites, especially the Governmental Portal (www.magyarorszag.hu) and the Ministry of Health portal [UNPAN 2002]. Among the totality of projects tackled, the ones involved in Public Education are certainly the most effective.

The SuliNet Public Education is the only Hungarian case listed in "good practice framework" about the *e-government* in the European Union. It is in fact an effective initiative from Hungarian Government and Ministry of Education. The SuliNet programme provides internet access, on-line content and advice to the Hungarian public education structures. It is a part of the education system reform and tries to follow the many changes of recent years. In fact in Hungary as well other European countries, ICT diffusion pushed the new management of public services, the demand of digital skills in the labour market, the supply of software products (and the use of open standards). According to Ministry of Education strategy, the education policies should consider this kind of innovation: *a) the introduction of flexible, responsive learning programmes; b) the introduction of the notion of education for life; c) the introduction of policies and programmes to enable social inclusion.*

The role of Public Administration is to boost the use and the application of ICTs. In this sense the Administration plays a very important role by increasing the infrastructure and the *e-services* use. In order to implement these changes other programs have been launched⁶, for example the HIK.

The Information and Service Centre for University Students or the Kempelen Farkas Student Information and Resource Centre/Hallgatòi Informáciòs Központ (HIK) has been working since 2003 and it was introduced by the Ministry of Education. It is an higher education Institute that provides services and information such as full internet-access on 300 computers; access to the database of the Hungarian Electronic Information Service; standard and electronic library services; assistance and consulting on issues related to higher education (scholarships, careers counselling); on-line and traditional bookshop; events centre, café, children's corner, etc.

Today the HIK is used by about 4,000 students in their studies or researches and represents an effective tool to keep up the life-long learning and the spread of ICT. It's a part of the **Electronic Information Service (EISZ)**, a national programme with databases, books, manuals and newspaper, dictionaries and national and international information to help the higher education path (i.e. university students, teachers, researchers). The HIK is also a website that the Education Ministry have been enriched since 2001 with some scientific related websites.

Box 2 - What is going on: the "digital 5 corridor"

On may 2004, the IT Ministries of Italy, Hungary, Croatia and Slovenia signed a memorandum to undertake a fruitful cooperation venture to develop Information Society Services, especially infrastructure. This agreement is the same as the 5 Corridor that refers to infrastructures throughout European countries. But the

⁶ As a part of SuliNet, the Education Kht was introduced and it is working now. It is a public company in charge of providing *eTechnology*-based teaching programmes, materials and related services (secondary education or higher)

accord will invest first of all in services and only successively on infrastructure. A steering committee will be established in order to investigate and plan:

- The architectures of intelligence systems aimed to create cooperation among the Institutions and the agencies operating in transports
- Facilities for firms on the way of "Corridor 5"
- Interoperable customs services (manage of dangerous freighter)
- The involvement of Health Care Centres for telemedicine applications
- The realization of Public Internet Access Points (PIAPs) on the road of Corridor 5
- Multilanguage services.

The analysis should arrive at a definition of the projects and the services on the basis of citizens' needs.

KIKERES and the Metadata

The *e-government* is based on the opinion that public information should be shared with the citizens. Actually within the public sector, each office, department, agency...is the container of a lot of information. All public information is massive quantity of capital, indispensable for the Information Society itself.

e-Government means also that all the offices, departments, agencies shall share and exchange information. The question doesn't stay in the theoretical model, but in the way of transferring, keeping, updating all data. For this reason the Interministerial Committee for Information Technology (ICIT), Prime Minister's Office (PMO) and the Data Management Technical Committee of the ICIT, established that a metadata service should be created. This means a public administration data registry.

KIKERES is the "Hungarian National Public Administration Metadata Service" launched in 1999⁷. Metadata is "data about data", i.e. the description of content, quality, status, extension of validity etc...all very important aspects in the knowledge based society throughout the electronic communication. In fact thanks to a unique system, both the user and the manufacturer of data use the same conceptual system. Kikeres looks like the catalogue of public information asset and metadata looks like the library catalogue cards. It's aims are:

- a better understanding of data of public interest
- a better utilization of the data treasury of the public administration
- reducing the multiple data management
- the designability of the data management

What does KIKERES mean? It means that thanks to a discovery service, the Governmental Information Locator System (GILS) "is accessible for anybody on the Internet, free of charge a distributed system: each data host is hosting its own metadata it can be used as an institutional data catalogue an expandable metadata-structure for different data it is based on international standards (Dublin Core, XML/RDF, etc.)" [ESKI 2004].

Box 3 - Governmental Act about the public administration data management [1113/2000. (XII. 27.)]

- metadata of public sector information resources and related terms setting up framework systems (software development, central servers): Prime Minister Office (PMO), January 31, 2001
- initial data uploading in the central administration: PMO and ministries, June 30, 2002
- continuous operation: PMO and ministries
- voluntary join of other institutions carrying out public duties
- financing of initial upload (3.6 M EUR), central operation, organization, methodological support, information: PMO

⁷ The *green Book* of EC states "we cannot avoid the setting up of such metadata servicing systems, which help the information users to find their ways about the data mass of public administration".

The metadata description in the KIKERES provides a common set of terminology and definitions for the unified documentation of information resources in public administration.

In each document, each profile has a unique element set, the first part is the formal elements, the next one is the Content group, the third is the Administrative elements, and so on.

It is an encoding system to allow each administration to use the same system (corresponding to RDF specification and XML documents). These requirements could be considered a great opportunity to strengthen the coordination among different tiers of Public Administration.

Each phase is ruled: the creation, the state of the information (record finished, working version, not yet finished); the Group Type (can be: unique = map sheet, collection = map series, periodical = Statistical Yearbook); the encoding of Language (two letter code taken from ISO 639, and extra two letter code taken from ISO 3166); the legal background of the data collection (e.g. National Data Collection Program, Census Act); the type of data collection (national statistical data collection, official registry, data collection to provide data to international organisations, data collection of private sector).

As for the query service, it's important to stress that the client (i.e. the user who is asking for information) can submit his request in the *concept database* which is able to validate the terms that are used in the metadata record and to assist in exact translation of metadata to another language. This is an issue in KIKERES as it is required to maintain metadata in both Hungarian and English- The Multi-Language Support means that

- the Concepts can be defined in any number of languages simultaneously (provided that the definitions are otherwise equal)
- the user interface is multilingual
- languages are symmetric - they are all treated equally; no language is emphasized.

It is possible to submit the query in Hungarian or in English without any differences.

e-Health

e-Health means the application of ICT across the whole range of functions that affect the health of citizens and patients: *a) health care provision; b) health-related information; c) Information related to trading of health products.*

The fostering of *e-health* means ICT from the professional point of view; management of information and information flow in the whole process of care; enforcing EHR-Electronic Health Record (allowing the sharing of medical records between care providers and patients, in any application), but also patient self-management, telemedicine, electronic messaging, electronic registries and databases, regional and national networks – all taking place on the Internet.

Very close to *e-health* is undoubtedly the Continuous Medical Education (CME) also providing health, medical and healthcare information. And the *e-commerce* of health products could be boosted as the information are more and more accessible.

e-health has to be considered a part of the *e-government* plan; in fact it is mentioned in the ***eHungary 2004-2006*** rather than in the "**Decade of Health Program**".

e-Health is strictly related to *eEurope 2005*. In fact, it is based on:

- Modern, on-line public services: *a) e-government ; b) e-learning ; c) e-health*
- Dynamic, *e-business* environment
- Widespread availability of broadband access at competitive prices
- Secure information infrastructure

The antecedent of the programme *e-health* is the implementation of the 10-point Action Plan for *eEurope*: the Knowledge-based economy and Internet technology imply availability and accessibility (faster, cheaper and safer).

E-health also means closer collaboration between DG Health and Consumer Protection and DG Information Society. The European e-health 2000-2002 aims were:

- Ensure that primary and secondary healthcare providers have health telematics infrastructures in place, including regional networks
- Best practice in electronic health services in EU
- Establishment of a set of quality criteria for health-related websites
- Establishment of health technology and data assessment networks
- Dissemination of the legal aspects of e-health

EU membership substantially influenced the development of electronic health information services in Hungary, not only for all the initiatives to support the Knowledge-based society, but for the boost to the modernizing of health services, the finance system, etc. EU membership imposes many requirements also for the e-health because of these aims : serving direct population needs by a sector-wide information system; health indicators according to EU requirements; establish standards; use WEB as an infrastructure.

The PHARE funds and the structural funds were used also to carry out some initiatives that are now in progress:

1. [central health portal](#) (2003)
2. regional health information networks/centres with various services (2004-5) (PHARE funds).
3. EU-compatible set of public health indicator databases (2004)
4. electronic certified public registries (e.g. physicians, health delivery service organizations etc., 2005)
5. infrastructure for secure health data exchange (2004-6)
6. supporting standardized in-house system development (2003-6)

Concerning with the spreading of ICT in Health Sector, some results have been achieved:

- in *primary care*:

about 5700 practices are using computers for patient registry and maintaining a basic EPR-Electronic Patient Records, but only a fraction of them is networked, most of them are running their applications on outdated hardware

- in *secondary/tertiary care*:

about 170 institutes have computers in network, all are reporting their DRG-Diagnosis related Group based financing data electronically, but most of the systems have arbitrary data models and various, non standard set of services, and are not connected to each other •

- in *public health service*:

the National Public Health Service is now experiencing a nationwide introduction of an integrated network, with centralized services, financed by EU (PHARE) sources, but in general the coverage of this sector is poor [Ministry of Health 2003].

What's going on

Computerized data collection and quality monitoring information systems have become increasingly important in the Hungarian Health Sector [WHO 2004a].

The e-health action plan until 2005 is based essentially on online public services, whose targets are: Electronic Health Cards; the Health Information Networks; the Online services; the Health Telematics; the R&D frameworks.

Today a *best practice* in this context, is the **Handbook of Clinical Evidence** (EBM) with a program of end-user-education that is just working and also with some web application. But the fulcrum of Hungarian e-health is undoubtedly the health portal and the development of broadband network in health care [ESKI].

The Health Portal works and is available both in Hungarian and English language. It uses the KIKERES system and so it is possible to ask a query in different languages.

By the end of 2005 some online services will be available on the health website:

1. Establishment of public health portal
2. DR.INFO telephone health consulting service - 1st phase
3. DR.INFO health-related web portal - 2nd phase
4. Information resources for citizens (Healthy living; Disease prevention; Electronic health record; Teleconsultation; Preventive information, e.g. air and water quality information)
5. Development of regional model projects with support from EU structural fund
6. Introduction of categories, standards, applications: *e*Prescription, *e*Record, *e*Consultation, etc.
7. Introduction of categories, standards, application [CENTC251](#)
8. Digital signature in health-related applications

The projects are coordinated and led by the ***e*-Health Programme Office** Chance for Harmonisation.

There are some priorities regarding the development of the Health Portal.

One of the priorities to be faced is the quality control on the websites in the *.hu domain (among them there are also the sites of health authorities, health institutions, even individual doctors, portal-like sites of medical publishers and sites of health service related companies). One solution could be the adoption of 'Health On the Net' code.

Another issue is the interoperability of the Health System with other Health Systems. Recently Hungary, adhered to [CEN](#) to adapt health informatics standard in order to share data models, indicator sets, architecture standards.

One of the most important tools- and at the same time goal -of implementing *e*-health is the **Electronic Patient Card**.

In order to create it, it's necessary to establish an architecture (patients identifiers, records) common to more entities (and for the UE common to more countries) and to ensure patient privacy, but allow access to medical emergency data and secure access to personal health information. In the EU it is planned that the Electronic patient card will be suitable for emerging treatment till 2008.

In Hungary the application date for the "***e*-Europe smart card**" (key card/data card alternatives) is 2006 (the project is led by NHIF) [ESKI].

e-Health means also **Health Information Networks**: citizens should be allowed to access online health services (via broadband connectivity by the end of 2005 according to *e*-Europe). The National Public Health Service Network Programme (ANTSZ) - in which only the authorized user can log in - works on health portal. It was realized with EU support [ESKI 2004].

The Government supports also the **R&D Programmes**: many of the projects are supported by DG Information Society under the EU Research Framework Programme. Moreover the Working Group on Health Telematics has been asked the following tasks: review the application of ICT in the health sector; consider particular applications of ICT in health namely health cards, virtual hospital; provide for the dissemination of health-related information to health professionals and patients.

Naturally, to promote *e*-health application it is also decisive to promote quality and enhance efficiency in health care; to share best practices in *e*Health; integrate information among different administration levels.

With regard to the quality approach to human resources in the healthcare system (i.e. registration and licensing of physicians and health care institutions, certification, accreditation, registration of drugs, medical devices and blood products followed by the development of practice standards/guideline and audit/peer reviews) Hungary has installed mechanisms to start Health Technology Assessment [European Health Forum Accession Workshop Report].

There are good indicators of the possibilities for realizing *e*-health, for example a number of ICT technologies exist; and the Health Information System (HIS); in the Primary Care medical records and electronic prescribing are used in everyday patient management; in the Home care teleconsultation is used.

Hungary has long traditions in this area. Hungarian projects/partners were and are participating in EU R&D Projects since the 3rd Framework Programme moreover there are some Hungarian R&D programmes: the Dialysis and Transplant Card system (<http://retransplant.vitamib.com/>); the Virtual clinic (www.all.hu); the Digital Picture Archiving system (www.huniko.hu); the ProRec-Hu web service (www.prorec.hu)

In the end, Hungary, like other European Countries (e.g. UK, Finland, Sweden, France, Norway, Hungary and the Netherlands) is currently planning or installing secure PKI-based infrastructures for health care. The Public Key Infrastructure (PKI) platform is a general solution for *e*-health services - it combines technology, policy and administrative procedures - in an otherwise insecure environment such as the Internet. In a *e*-health care environment it needs: *a*) authentication, encryption, digital signature and certificates; *b*) ensure data integrity and the identification of the origin of the data as well as for managing; *c*) long term digital archiving. It is very important that the electronic transmission of personal patient data via open networks is ensured with adequate security infrastructures (the use of qualified electronic signatures and asymmetric encryption). So the PKI's task is to ensure these features⁸.

Summary

The last decade has been a very intensive period in the Hungarian History. One can imagine how many changes can follow on each other when a Country meets successive events such as the collapse of the Soviet System and the ensuing economic and political crisis; the liberalization process, the ensuing global economic and political risks; the accession to EU, and the ensuing opportunities and limits of the adhesion (many rules are necessary in order to be free, even more in the market...).

Today the Country seems to be ready to face the global world, thanks also to European Membership.

In the Health Sector - i.e. Healthcare System and also Pharmaceuticals, Equipments, Human Resources - the lesson seems to be the same: say goodbye to centralization, embrace privatization, ensure comprehensive but equal and efficient health care.

In this perspective, the Public Administration undoubtedly has the key role: to manage, sustain and facilitate the reform. Innovating itself is the first step before to becoming the main tool for the all other sectors. Even in this sense the pre-adhesion operations and support of EU oil the wheels. Within the new management model for PA, in Hungary, *e*-government also represents the absolute aim. On the basis of *e*-government philosophy, there are reforms in public communication, in the information network throughout all tiers, and the most of the public services shall use ICTs.

⁸ Other European countries are going to accept other standards that are more adapted to national legislation and a Trusted Third Party (TTP) is under discussion for a political agreement across Europe [EU 2003].

There is certainly something special if an encoding program (that could be also a simple software) can boost the cooperation in the PA, even more if the different tiers of the PA were organized in a strong hierarchical model (see for example KIKERES' aims and procedures).

Inside this strategy in Hungary, there is also *e*-health. In this case a great push comes from EU, so that the *e*-health is under Hungary's "*e*-strategy" of instead being part of the healthcare strategy.

The steps of *e*-health implementation follow the *e*-Europe strategy, too. In this way *e*-health is going forward...Notwithstanding that a decade ago, the citizens weren't able to have a private phone line, today it seems to be possible to be able to call DR.INFO and ask for health information. It seems that the plan is working and that *e*-Health is moving towards *e*-Care.