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Healthcare Infostructure – Slovene National Strategy

Over the past 10 years, Slovenia has systematically invested in the building of information technologies in the health care and health insurance. In this way, we have achieved a rather high level of equipping of all health care service providers with computer technology, established and unified the principal data collections, adopted and implemented standards, and made electronic data interchange the prevailing method in communication between providers and purchasers of services. An important step in this penetration of information technology was the introduction of the health insurance card (HIC) completed in 2000. In this context, every insured persons received a (microprocessor) health insurance card, and every authorised health care worker a health professional card; a broad network of self-service terminals was set up designed to run on-line transactions and to upgrade cards in circulation with new functions, and the application of card technology was integrated in the processes of dealing with insured persons, i.e. patients. Another achievement in the past decade deserving mentioning is the high level of computer literacy among the health care workers and the proficiency in handling microprocessor cards among the Slovene insured persons in general. Investments in computer infrastructure followed the changes introduced in the Slovene health care sector. Without the support of information technology, the introduction of the scheme of supplementary insurance (this supplementary insurance, called "voluntary insurance" in Slovenia, accounted for approx. 15% of the total health care budget in 2002) would be an impossible task, and likewise the process of privatisation (the private sector prevails in the primary level care, while hospitals are mainly public organisations in the state ownership). Information technology has played a role in the internal restructuring of the health care sector, as all the changes were implemented without the need for new employment and, until recently, with positive financial performance.

Projects of extensive financial dimensions, including the national scale introduction of the HIC system, were released for realisation only after a preliminary clear and transparent cost-benefit analysis. With the mentioned project, the costs taken into account included all investment in development, computer equipment, training and maintenance, while on the benefit side, detailed analyses were done of the anticipated effects in terms of the simplification of procedures in health care and health insurance, the simplification of procedures of registering-in health insurance on the part of the employers, simplification or abolishment of unessential procedures for the insured persons, anticipated reduction of the rate of reclaims due to improved data quality, etc. The comprehensive evaluation upon the completion of the project and close monitoring of effects fully confirmed the expectations. Moreover, actual benefits stemming from improved control over input and output resources, both in the sector of compulsory health insurance and in the

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supplementary health insurance sector that joined the system later, even shortened the investment payback period. In the cost-benefit analysis, only the first phase functionality was taken into account, while all subsequent functionality enhancements bring substantial business benefits at moderate incremental investment in development.

Quality of services to insured persons – patients – citizens is the non-tangible benefit component, which, while being the ultimate goal of any introduction of information technology solutions, is hard to measure directly in financial terms. Yet, the fundamental change in this quality is definitely demonstrated by the ever-growing extent of the application of e-services in implementing health care rights. Thus, approximately 12,000 online consultations per day are carried over the self-service terminal network, 33,000 drug parcels issued to the patients applying the card in the pharmacies and 1,700 medical technical aids with specialised suppliers, and, in the summer vacation period, 3,500 convention certificate forms for emergency medical assistance abroad ordered over the terminal network. The set of services offered and the extent of their use are progressively growing, with initiatives for further development steps originating from patients and health care workers.

How to proceed further? How to further utilise the infrastructure in place? In what ways can information technology be of service to better cope with challenges faced, similar to other EU countries, by Slovenia in terms of the development and introduction of new medical technologies, constantly limited budget, ageing of population, growing expectations and demands by the patients, i.e. the end customers in the health care system? In our view, the solution is to further utilise the established infrastructure, gathered know-how and experience, to develop new solutions and to further strengthen the data and process integration of the health care system. In the HIC system segment, the functionality is being enhanced to cover more health insurance business needs and are penetrating into the medical sphere. To date, a number of new functions have been developed to the stage of implementation or final design. These functions comprise e-services through the SST network, the recording of the cardholder's commitment to posthumously donate organs for transplants, and the information support of issuing medical technical aids.

At the same time, several new functions or enhancements are in preparation. These include the support to prescribing and issuing medication, the recording of vaccination data, life critical allergies to medicines. The dimension of intervening into the medical aspects of health care, shared by all these extensions, obviously implies lengthy processes of establishing consensus about the use and management of data involved, as well as about the procedures, authorities and responsibilities involved. The entire design and development process is thus characterised not so much by the technical aspects (since the technical infrastructure is in place and available), but rather by procedural, doctrinal, jurisdictional and political issues.

In the technological segment, the HIC system is being upgraded with digital signature and the public key infrastructure (PKI). In the first phase, this enhancement will be implemented with the health professional card, later on, extension to the health insurance card is envisaged. The additional security

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provided with this technology promises to turn the cards into powerful and secure tools for access to network services and data, in an integrated card/network environment.

From the very outset of the Slovene health information technology solutions, Slovenia was fully aware of the importance of their international compatibility and interoperability. This commitment arises both from the awareness of the economic and operational benefits of applying proven and universal technologies, as well as from the vision of the positioning of the new system in line with the emerging similar systems in the community in which we are entering, to facilitate future cross-border interoperability in establishing an environment for free movement of people and services.

As a phase in the continuous process of modernisation of information systems, a major project is under way in Slovenia, the Health Care Management Project. It is managed by the Ministry of Health and co-sponsored by the World Bank. Health care is a complex system, which combines many subjects, such as providers of health care services, users of health care services, health care policy makers, etc. Smooth communication among these subjects is of key importance for the system operation, management, planning and development. It can only rely on precisely defined standards (data), which are unequivocally understood and used by all the participants. Thus, one of the key project objectives is the formulation of health information standards, including their architecture, data models, coding systems and classifications, conforming to the TC 251 HISA scheme, to facilitate the introduction of diagnosis related groups and further development of electronic patients' records. The development of the information system is an important component in the overall health care system reform, which has recently been announced and outlined by the Ministry of Health.

In this respect, the Slovene system already in place, with its combination of secure cards and network solutions, is seen as a valuable technological infrastructure for the implementation of the project concepts. In the process, the card will embrace other data beyond the current identification and administrative set, and will progressively embrace health care and medical functions. In accordance with the objectives, plans and concepts invested in its development and implementation project, the Slovene system has proven to accommodate the needs of the entire national health care and health insurance system. One major element of its success and acceptance was its bringing benefits to all health care actors, users and shareholders. For the patient, the system facilitates access to health care and health insurance services, for the health care workers, it ensures reliable and accurate patient identification, provides up-to-date data and thus also facilitates the reporting and accounting of services provided. To the health insurance providers, the IT has contributed to the overall transparency of data and financial flows. To the health care sector as a whole, the system offers a versatile and standardised technological infrastructure for the phased and systematic introduction of new information uses, broadening of the function set towards the health care and medical applications.

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The ultimate mission of information technology in the health care system is to contribute to the quality of services to the client - patient, to promote his/her autonomy and sharing of responsibilities. To benefit further from initial success for the benefit of all the citizens, continuous and fast development in this field is an ever pressing demand.