

medGateway

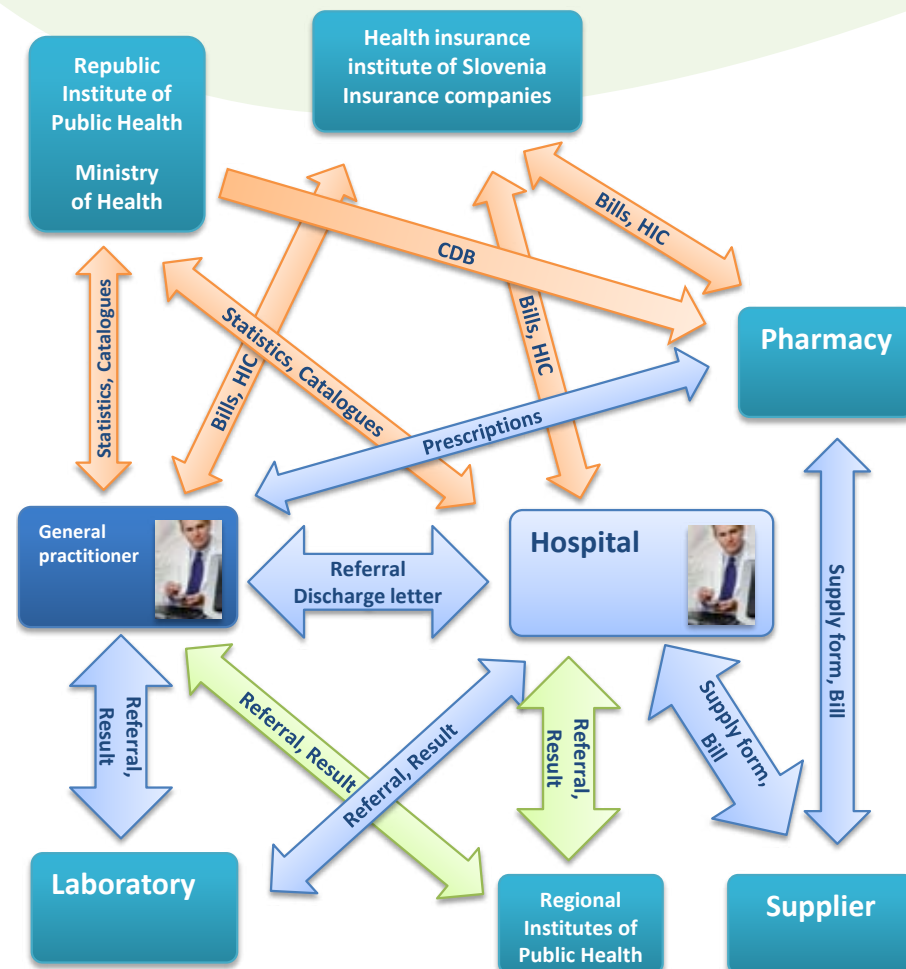
Serious thought about paperless provision of healthcare services dates back at least to the first half of the 1990s, when Slovenia was swept by the first wave of computerization of healthcare institutions, which involved transmission of data about medical services performed by community health centers, hospitals, pharmacies etc. to the National Health Insurance Institute. At the same time, this is the first successful attempt at computer-assisted data interchange between various healthcare institutions.

Paperless hospitals are now a reality. One of the better examples of this is IOV (Oncology Institute of Vojvodina) in Sremska Kamenica, Serbia, where we introduced IT support in all segments of their operation. The only paper record of the examination now is the one given to the patient. However, a large part of their interactions with the outside world still lacks adequate IT support – receiving medical referrals, scheduling laboratory tests, sending and receiving diagnostic results, sending discharge letters etc.

At Infonet we decided a few years ago that no more technological barriers exist to prevent a breakthrough in this area. In collaboration with our parent company SRC d.o.o. we included all healthcare entities to develop a (service) platform, which was put in a central position within the healthcare system. This allowed exchange of data between different healthcare institutions through use of standard protocols, effectively making inter-organizational processes faster, cheaper and more accurate. We called this platform "medGateway".

This way data was made more transparent, and we made the work process much shorter and easier for many people involved. This greatly benefits the patient as the end user of the healthcare system. Speaking of patients - Infonet has been trying to make it possible for the patient, as the primary link in the chain of healthcare provision, to no longer need to maintain and transport their own medical documentation, but will instead have access to computerized medical records. The medGateway service platform was designed with this in mind - to upgrade existing medical

Picture 1. Schematic illustration of the concept of integrated healthcare



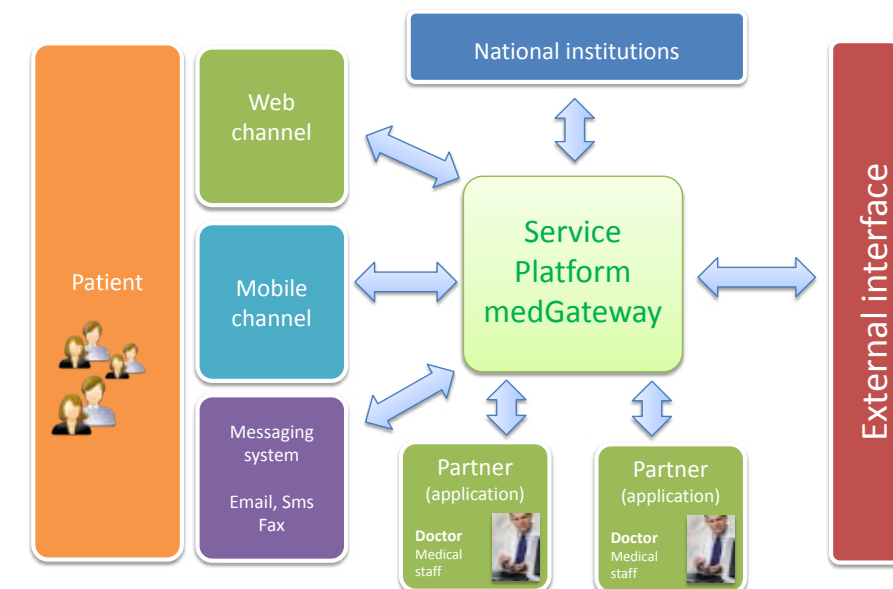
information systems in a way which will ensure that the healthcare information system includes the patient themselves as a direct user.

Exchange of documentation

The primary purpose of the service is to ensure controlled, secure, reliable and official exchange of documents between two institutions, while the secondary purpose is to ensure formal storage of documents in a suitable archive. At the same time, the service brings a platform which can host completely new services in the future, which are yet unavailable today (smart notification of patients about diagnostic results, informing patients about the time of their doctor's appointments, intelligent waiting lists, virtual pharmacy, patient portals etc.).

We wish to replace paper document exchange with more convenient, faster, more reliable and cheaper electronic exchange. Thus the service will provide participants with a product with an added value based on the use of data and advanced optimization algorithms, optimization of medical services, purchasing chains and operation of organizations. The solution concept does not increase the technologic complexity for the end user.

Picture 2. Schematic illustration of the system



Service scheme

The service platform allows all documents (referrals, diagnostic results etc.) created in the course of healthcare service provision, to be stored in a central repository.

Only authorized persons have access to this data (those who created the document and those who are the intended recipients of the document). The data stored in the central repository are digitally signed, which ensures:

- authentication of the party signing the document,
- unconcealable ownership of the sent document, i.e. ownership of the document cannot be concealed
- message integrity, i.e. no part of the data can be altered or otherwise edited without (knowledge of) the signer.

Any user of the service platform can request a list of documents and data intended for him at any time. The user can select a document from the list and perform allowed actions on the document (deleting, editing etc.).

Security

Personal data protection in the context of healthcare IT is crucial to the success of any project in the field, leading us to build the following security features into the solution:

- public key infrastructure,
- authorization and authentication,
- integrity and confidentiality,
- digital signature and encrypted transmission, all of which are an attempt at setting the standards and presenting a choice of technologies for secure access, management and storage of medical data.

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