IT Challenges Concerning a Nation-wide Medical Information System

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Abstract

The aim of the ORG GVOP project is to create an IT solution that enables unified data management using a standards-based and distributed architecture. In various areas of science, and almost in all walks of life, the collection, processing, secure storing and (from the points of view of researchers and political, financial or other professional decision-makers) usable network publishing of large volumes of data having complex structures.

In the project, we created a specific distributed data warehouse, but the technical solution was created to be so general that it could be used in any medical or any other areas as well (e.g. surveys, social or other scientific studies) for collecting and comparing data. The work of researchers is helped by a separate researcher portal, that makes statistic queries on arbitrary combinations of anonymised data possible.

In a database with such an importance, quality of data was a key issue. For improving data quality, our project developed a method for total data quality control that performs monitoring, consistency checking, error reporting and automatic correction of data from their production to their final use, in a full life cycle. This is implemented in an easily-extendible way that can be customised for each institute with so-called consistency criteria, that may range from simple ones such as checking whether the sex and given name correlate to very complex ones such as checking the probability of a certain report in the light of his/her previous medical records. If a question emerges, the system sends it back to the hospital, and the doctor may decide whether to correct or affirm the data.

To protect data, all communication between the central and the users, the central and the hospitals, and the hospital's system and the doctors are performed using encrypted channels. Long-term storage and compatibility with possible future systems is achieved by using XML-based standard formats.

Links

ORG Projekt Home Page: http://dsd.sztaki.hu/projects/org/en/

MTA SZTAKI Department of Distributed Systems: http://dsd.sztaki.hu

arvato systems Hungary: http://www.arvato-systems.hu/

National Institute Of Oncology: http://www.oncol.hu/