

# KHRESMOI

## Medical Information Analysis and Retrieval

## Integrated Project

Budget: 10 Million Euro  
EU Contribution: 8 Million Euro  
Partners: 12 Institutions  
9 Countries  
Duration: 4 Years  
1 Sep 2010 - 31 Aug 2014

### **Project Coordinator:**

Henning Müller  
University of Applied Sciences Western Switzerland

### **Scientific Coordinator:**

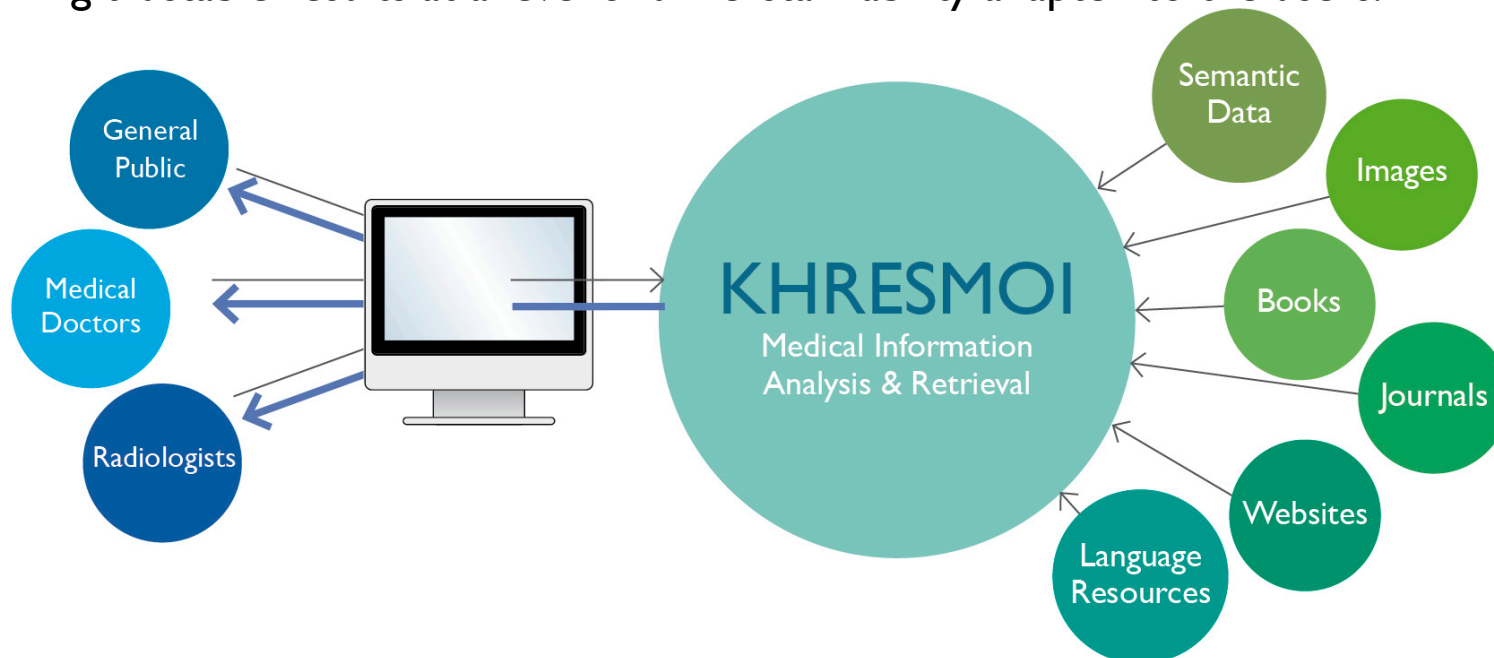
Allan Hanbury  
Information Retrieval Facility, Austria



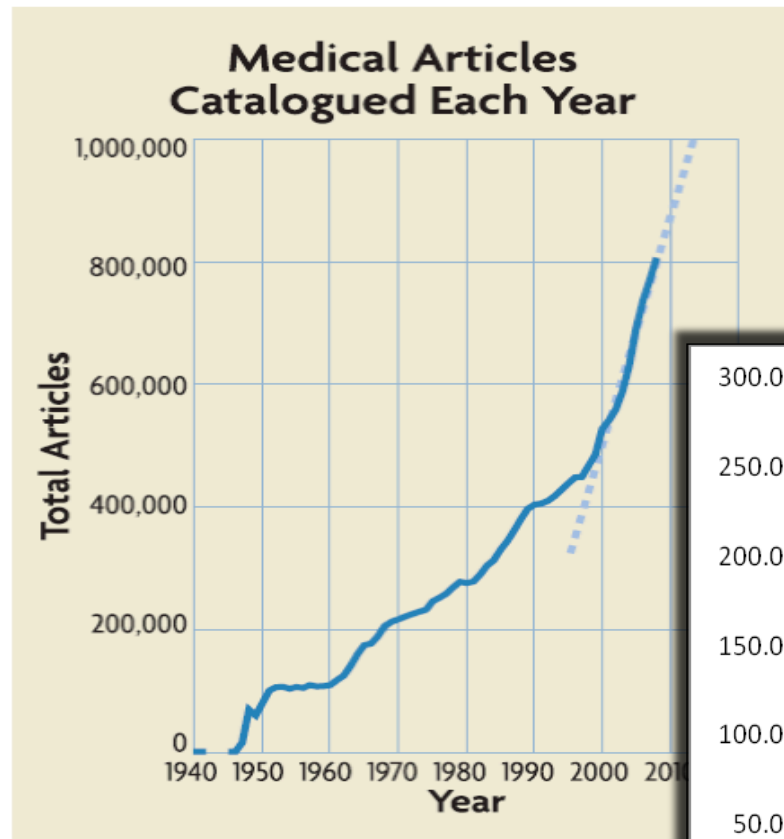
# Objectives

KHRESMOI aims to build a multi-lingual, multi-modal search and access system for biomedical information and documents. The system will allow access to biomedical data:

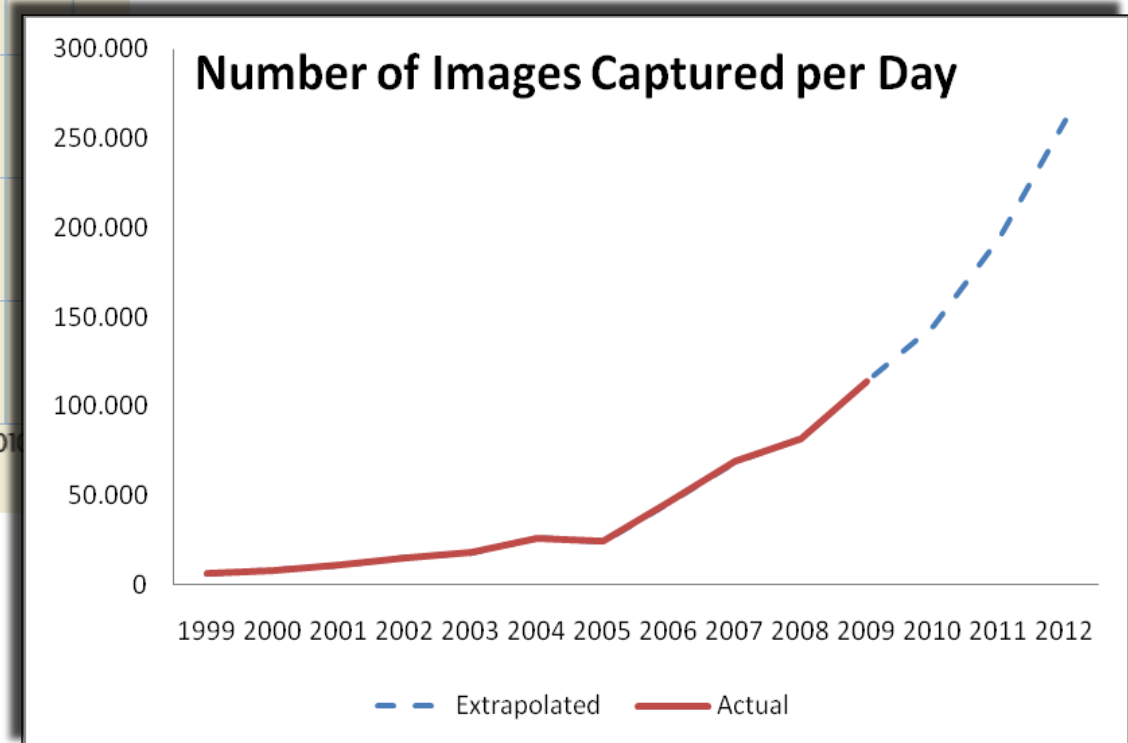
- from many sources,
- analyzing and indexing multi-dimensional (2D, 3D, 4D) medical images,
- with improved search capabilities due to the integration of technologies to link the texts and images to facts in a knowledge base,
- in a multi-lingual environment,
- providing trustable results at a level of understandability adapted to the users.



# Information Explosion

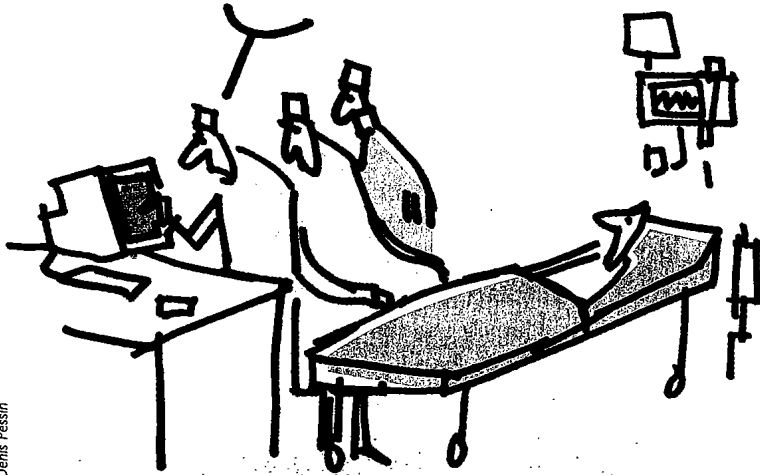


Source: Microsoft Research 2009



# E-Health Information and E-Patients

DOES IT HURT  
WHEN I PRESS HERE?



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PESIN



"I'M SORRY DOCTOR, BUT AGAIN I HAVE TO DISAGREE."

## **General Public**

Seeking medical information online

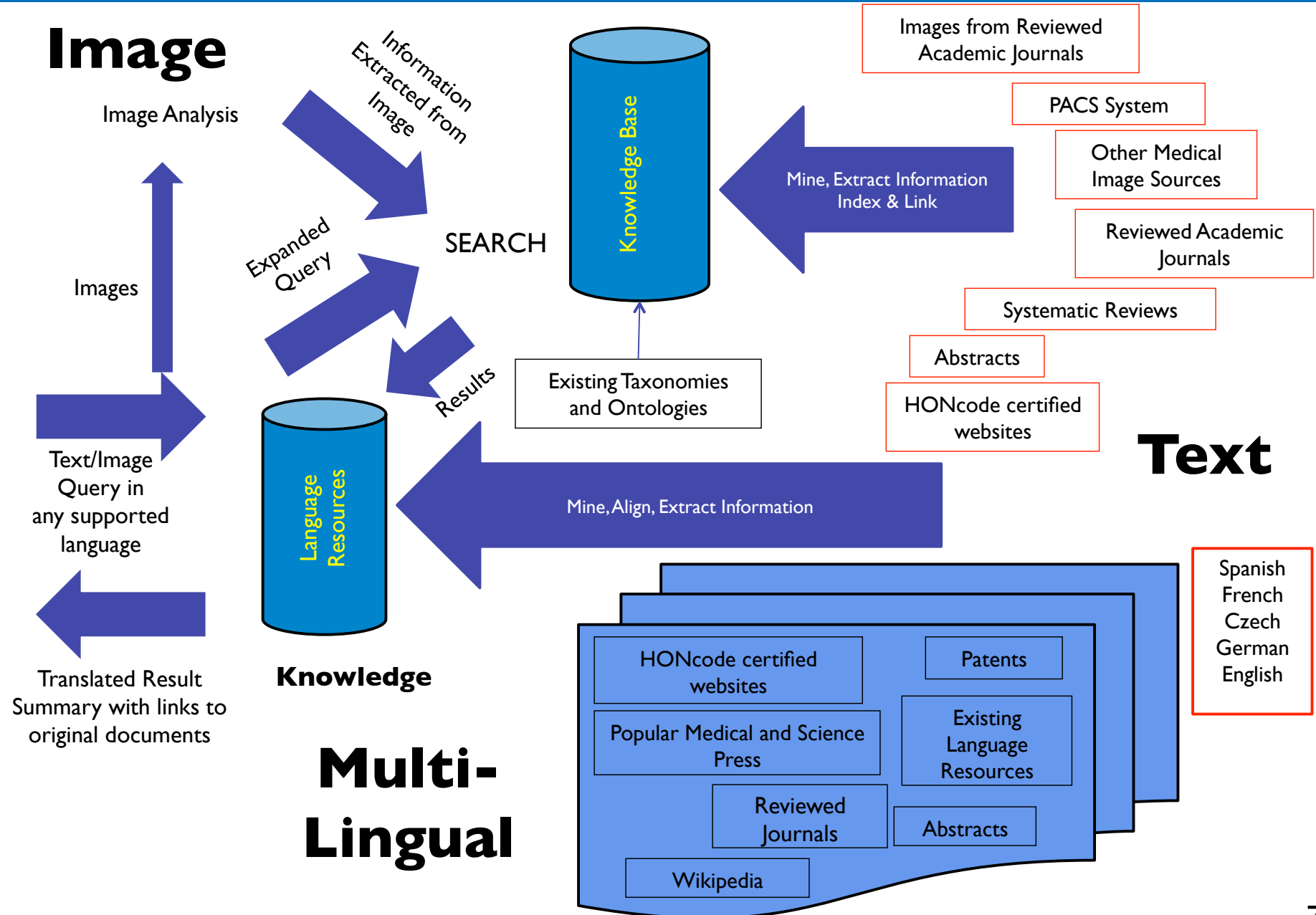
## **Medical Doctors**

Need rapid and accurate answers

## **Radiologists**

Drowning in images

**End Users: General Public, Medical Doctors, Radiologists**



KHRESMOI aims to develop a multi-lingual multi-modal search and access system for biomedical information and documents. This will be achieved by:

Automated information extraction

- biomedical documents
- crowd sourcing
- active learning
- automated estimation of the level of trust
- target user expertise

Automated analysis and indexing for medical images

- 2D (X-Rays)
- 3D (MRI, CT)
- 4D (fMRI, MRI over time)

Linking information (biomedical texts and images)

- unstructured
- semi-structured

Cross-language search and adaptive user interfaces

- multilingual queries
- machine translation
- interactive visualizations



## Medical Impact

- Improve the access to medical information for doctors, so that they have more time to talk to and to treat patients, having all the information required for doing so more effectively.
- Convert the flood of radiological image data into a boon instead of a curse.

## Scientific Impact

- Address the lack of publicly available large-scale data sets and realistic task-based scenarios on which to assess new technologies.
- Make available cutting edge techniques implemented in open source software.

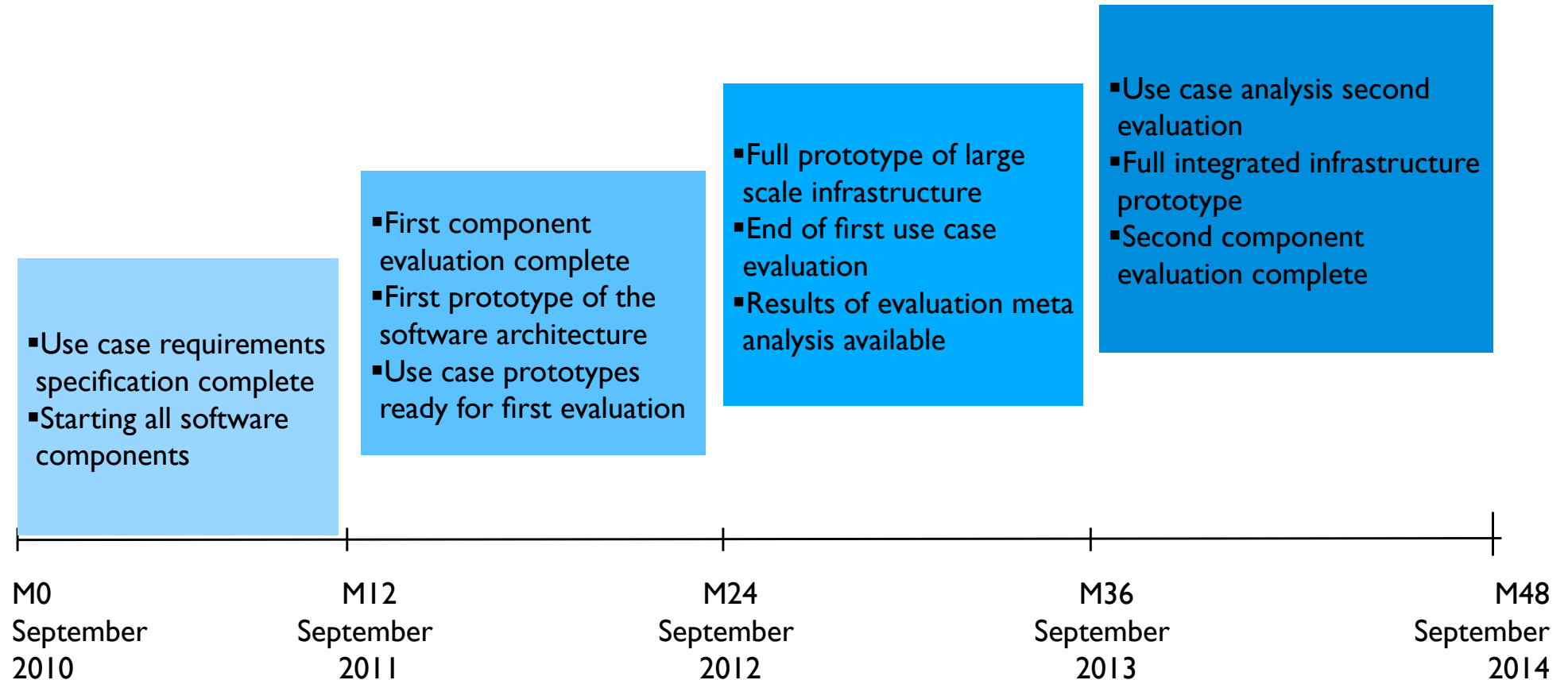
## Industrial Impact

- Improve existing open source products' stability, features and performance, and hence their attractiveness and suitability for wider deployment.

## Public Impact

- Members of the public will be using the Health on the Net search engine, improved by the KHRESMOI technology, relatively early in the project.

# Project timeline



# Khresmoi & The Digital Agenda

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- Khresmoi is addressing the societal challenge of quality assessment of health information online as well as the rise of large data in the medical context.
- It happens in line with the aim of the Digital Agenda 2020 to deliver sustainable economic and social benefits from a digitally grounded market based on the efficient combination of existing technologies and interoperable applications with an open source perspective.
- Its results will continuously be integrated into new architectures for robust and scalable biomedical information search.

[www.khresmoi.eu](http://www.khresmoi.eu)